EXECUTIVE SUMMARY

Fire has shaped ecosystems throughout time; people and ecosystems have evolved with the presence of fire. For many years fire was aggressively excluded to protect both public and private investments and to prevent what was considered the destruction of forest, savannahs, shrublands and grasslands. Fire exclusion, both wildland and prescribed, sometimes favors non-native species in some fire-dependent areas.

Orange County Fire Authority personnel have prepared this *Wildland Fire Management Plan* with the intent to satisfy State mandates and provide a fire plan for State Responsibility Areas (SRA) within Orange County. The plan is dynamic in nature and has a field driven planning process.

The goal of the *Wildland Fire Management Plan* is to reduce total government costs and citizen losses from wildland fire in Orange County. To accomplish this the OCFA must develop a process to address such factors as firefighter and public safety, wildland urban interface issues, prescribed fire, suppression, preparedness, protection priorities and cooperation. Throughout the process the plan must continually consider and incorporate the cooperative interdependent relationships of wildland fire protection providers, provide for public stakeholder involvement, and create a fiscal framework for policy analysis.
The Wildland Fire Management Plan assesses and defines five (5) components. They are (1) Initial Attack Success of the fire protection system provided for wildland fire, (2) Assets that are at risk from wildland fire, (3) Pre-Fire Management designed to protect the Assets and those who benefit from this protection, (4) Wildland Fire Management Compartments that will be established to prepare long-range plans for fuel treatments and (5) Fiscal Framework to assess and monitor long-term changes in the wildland fire protection currently being provided.

Finally, a Wildland Fire Strategy will be developed to foster partnerships and gain concurrence on plan implementation. The strategy, among other things, will (1) include alternatives to reduce total costs and increase fire protection effectiveness, (2) allow wildland fire service providers to focus on meaningful solutions for identified problem areas, (3) identify cost-effective pre-fire management investments to reduce taxpayer and citizen losses from wildland fire.

INTRODUCTION

Long before humans arrived in North America, there was fire. Fire is a disturbance that depends upon complex physical, chemical and biological relationships. Fire is inherently neither good nor bad, but it is the most powerful natural force that people have learned to use. Fire has shaped ecosystems throughout time.

Early ecologists focused on the principle that the land continued to move toward a stable or equilibrium condition. Since disturbance is generally the rule, equilibrium conditions are largely the exception, and as long as humans cannot completely control or eliminate these disturbances, ecosystems will continue to change. Fire not only reduces the build-up of dead or unwanted fuels, it performs many other critical ecosystem functions. Fire can recycle and stimulate the production of nutrients in plants and soil. Intense heat will aid in releasing seeds into soils, light, and nutrients that are critical for reproduction of fire-dependent species.

Human activities also influence ecosystem change. American Indian Tribes actively used fire in prehistoric and historic times to alter vegetation patterns. People and ecosystems evolved with the presence of fire. After the arrival of the European settlers, the human influence shifted and it was believed that fire could and should be controlled. For many years fire was aggressively excluded to protect both public and private investments and to prevent what was considered the destruction of forests, savannahs, shrublands and grasslands.

In Orange County there is a growing recognition that past land-use practices and urban growth (Fig. 1), combined with the effects of fire exclusion, have resulted in a variety of changes. These changes are demonstrated by the heavy accumulations of dead vegetation, altered fuel arrangements, changed vegetation structure and composition throughout the County. Without fire, encroachment of non-native or competing species has been occurring in some areas of the local ecosystems. Likewise, vegetation modification resulting from wildland fire exclusion can cause a shift toward species that are not adapted to fire (some of which are not native) and are therefore more susceptible to damage from fire. Wildland fire exclusion sometimes favors non-native species in some fire-dependent areas, while in other areas fire may encourage non-native species.

Paradoxically, rather than eliminate fire, exclusion efforts combined with other land-use practices have in many places dramatically altered fire regimes (circumstances of fires including frequency [Fig. 2a – 2g & Table 1], intensity, and spatial extent) so that today's wildland fires tend to be larger and more severe. To address these changes and the challenge they present, we must first understand and accept the role of fire, both planned and unplanned occurrences, and adopt practices that integrate wildland fire, and other techniques used to reduce hazardous fuels, as essential to the ecosystem.

Orange County Fire Authority (OCFA) personnel have prepared this *Wildland Fire Management Plan.* The intent of this plan is to satisfy State mandates to the California Board of Forestry to provide a fire plan for State Responsibility Areas (SRA) included in Orange County. **It is intended to be a dynamic plan with a field driven planning process.**

It is founded on a computer based geographical information system (GIS) to aid in the on going analysis of the hazard and assets at risk within Orange County. The acquisition of new data, new computer tools and application programs will require periodic re-analysis and changes in the future. The plan primarily addresses SRA lands within Orange County; however, the principles can be applied to all wildlands and open spaces within the County. Refer to Appendix A for all maps that pertain to the planning process.
The goal of the Wildland Fire Management Plan is to reduce total government costs and citizen losses from wildland fire in Orange County by protecting assets at risk through focused pre-fire management prescriptions and continued initial attacks success. To do this the OCFA must:

1. Develop a process to address such factors as firefighter and public safety, planning, wildland urban interface issues, prescribed fire, suppression, preparedness, protection priorities, and cooperation. Naturally, there are other factors that when considered as a whole, also play an important role in the overall plan and decision process.

2. Reintroduce prescribed fire and a variety of other practices into both management goals and protection goals of the Orange County Fire Authority. Prescribed fire is any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement, as opposed to "wildland fire" that defines any type of nonstructural fire, which occurs in undeveloped (wildland) areas of the county.

Throughout the planning process, the plan must consider and incorporate the cooperative interdependent relationships of wildland fire protection providers, provide for public stakeholder involvement, and create a fiscal framework for policy analysis.

This cooperation will allow us to incorporate the use of prescribed fire (the planned wildland fire ignition), fuelbreaks, vegetation manipulation (thinning, crushing, etc.) into management goals and planning efforts that will restore ecosystems and provide protection from the loss of human life or property. The current conditions on thousands of acres of wildlands, within Orange County, increase the probability of large, intense fires. These severe fires will in turn increase the risk to humans, to property, and to the land that we wish to enhance ecologically.

CONCEPTS OF THE FIRE MANAGEMENT PLAN

The California Legislature has charged the State, through the Board of Forestry and CDF, with delivering a fire protection system that provides an equal level of protection to lands of similar type (PRC 4130). The Orange County Fire Authority will:

- Develop and define components of the planning process.

- Identify a framework for a systematic assessment of protection.

- Develop a Fire Management Plan for all areas subject to wildland fire.

- Identify and gain concurrence of partners and stakeholders on implementation of the

plan.

Each of these components and the methodology used is described in the Assessment portion of this document.

The magnitude of this plan and subsequent action items cannot be accomplished by any one single agency. It is paramount that the Orange County Fire Authority works in concert with stakeholders to encourage, gain consensus and to accomplish action items that will benefit the publics and provide for firefighter safety.

WILDLAND FIRE PROTECTION ASSESSMENT

Five major assessment components have been developed and defined for the planning process. The components are:

Initial Attack Success. The plan will define an assessment process for measuring a success ratio provided by the fire protection system for wildland fire. This measure can be used to assess the OCFA's ability to provide an equal level of protection to lands of similar type, as required by Public Resources Code 4130. The level of service rating (the score of successes in initial attacks) can be used to compare one area of the county with another, recognizing that the assets at risk may be quite different. This will give OCFA a powerful tool for setting program priorities and defining the benefits of the programs. The level of service rating will provide a way to integrate the contribution of various program components (fire prevention, fuels management, engineering and suppression) toward the goal of keeping damage and cost within acceptable limits.

Assets. The California Fire Plan has established a methodology for defining assets at risk and their degree of risk from wildland fire. The assets to be addressed in the plan are citizen and firefighter safety, watershed and water, timber, wildlife and habitat (including rare and endangered species), unique areas (scenic, cultural and historic), recreation, range, structures and air quality. Stakeholders - national, state, local and private agencies, interest groups, etc. - will be identified for each asset at risk. The assessment will define the areas where assets are at risk from wildland fire, enabling fire service managers and stakeholders to set priorities for pre-fire management project work.

Pre-Fire Management. This aspect will need to focus on a systematic analysis to define and assess alternatives to protect assets from unacceptable risk of wildland fire damage, the alternatives will then become projects in the program of work. Projects should include a combination of fuels reduction, ignition management, fire-safe engineering activities and forest health to protect public and private assets. The priority ranking of projects is based on input and support of owners and stakeholders. Pre-fire management prescriptions designed to protect these assets will also identify who benefits and who shares in project costs.

Wildland Fire Management Compartments. A key product of the Wildland Fire Management Plan is the development of wildland fire management compartments. These compartments have been defined from established fire history, topography, landmarks, roads

and any other distinguishing features. The compartments will be used primarily for the preparation of specific long-range plans for fuel treatment, either mechanical or prescribed fire, that will reduce citizen and firefighter risks from costly and damaging fire. Compartments should be considered as flexible and over time may need to be changed, combined with other compartments or divided into additional compartments and added to the Wildland Fire Management Plan as addenda.

Fiscal framework. The OCFA must develop a fiscal framework for assessing and monitoring annual long-term changes in the County's wildland fire protection systems. The framework needs to incorporate baseline data into future planning to provide focused and meaningful solutions for identified problem areas. State, local and federal wildland fire protection agencies, along with the private sector, have evolved into an inter-dependent system of pre-fire management and suppression forces. As a result, any changes to respective budget level or level of service of any of the wildland protection entities will directly change through this fiscal framework, thus, allowing the Authority's Board to address public policy issues that maximize the efficiency of local, state and federal firefighting resources. It will also identify, before fires start, where the most cost effective pre-fire and fire management investments can be implemented.

ASSESSMENT FRAMEWORK

The assessment framework will consist of a systematic set of tools that describe the existing levels of wildland fire protection services. Additionally, the framework will assist in identifying high-risk and high-value areas that are potential locations of costly and disastrous wildland fires, assist in ranking the areas in terms of priority needs and prescribe what can be done to reduce the future costs and losses. The assessment system has five major components:

1. Fire History.

If history has a way of repeating itself, we know that wildland fire will continue to occur throughout Orange County. However, to determine such statistics as, but not limited too, frequency, intensity, resource losses, potential losses and threats an analysis of fire history is required.

Several GIS thematic layers have been developed to provide a simplistic map to aid in the analytical process. Data was obtained from the Orange County Fire Incident Reporting System (OCFIRS) for the years of 1991-2000. After a cursory review of the OCFIRS data, it was reasonable to assume that vegetation fire and all other types of fire occurrence needed to be separated, with vegetation fires further refined into categories depicting ornamental vegetation fire vs. wildland vegetation fire (wildland fire). GIS was used to build a theme that mapped all "vegetation" fires to the center of Fire Response Districts (FRD) (Fig. 3).

At this point, and to further separate data, a simple rule was applied: fires located in high-density housing areas vs. rural and urban vs. urban intermix would determine if a fire would be classified as wildland fire or non-wildland fire.

The second GIS theme was developed from an early edition hard copy map of wildland urban interface that was obtained and converted into a GIS layer, and then was referenced to Fire Response District(s) (FRD), and finally compared to current (CY2000) aerial photographs (Fig. 4). The parameters used in this phase of the analysis classified FRDs as: (1) **wildland,** if more than 25% of the district was open vegetation with sparse amounts of structures (2) **urban,** if more than 25% of the district was occupied by structures, (3) **water,** if more than 25% of the district was open waters, and (4) **no data,** for those districts outside of the aerial views and would not have data in the attribute table. FRDs that met parameter 1 and 2 and abutted each other were considered as the wildland urban interface area.

The third GIS theme is a comparison of the FRD classifications to OCFIRS "vegetation" fire data. All vegetation fire occurrences that fell within FRDs classified as wildland or fell within the wildland urban-interface were deemed **wildland fire** (Fig. 5) and are included for further analysis; all other occurrences were not considered in the analysis process.

The assessment model can be used to group fires into a variety of "planning belts" (vegetation, fuel types, Fire Response Districts, etc). Wildland fires are further classified based on final fire size and weather conditions at the time of ignition. It is at this time that each fire was labeled as either a successful initial attack or a failure.

Combining fire business workload patterns with aggregated assets at risk can be useful in defining target areas for focusing Wildland Fire Management Plan project efforts.

To identify areas of potential diminishing initial attack capabilities it is necessary to analyze areas with several ignitions. Ignitions are plotted to the center of the Orange County Fire Response District (FRD) as reported on the Orange County Fire Information Report System (OCFIRS). By mapping this ignition, FRDs with multiple ignitions are shaded by density (Fig. 6). FRDs with more that 10 ignitions over a 10-year period are shown in red on the Initial Attack Fire Workload Map.

2. Assets.

Assets at Risk

The assets addressed in the plan are citizen and firefighter safety, watersheds and water, timber, wildlife and habitat (including rare and endangered species), unique areas (scenic, cultural, and historic), recreation, range, structures, and air quality.

As part of the overall fire plan process, assets will be addressed at two levels. First, generalized assets at risk need to be identified within the County to indicate what areas contain highly valuable assets. The areas with the highest combined asset values and fire risk are then targeted for pre-fire management projects, particularly where such projects will reduce damage should a fire start in the project area during high fire hazard weather.

Second, as potential projects are identified, a subjective analysis will determine the degree to which the projects will reduce potential suppression costs and damage to assets.

The asset framework and validation process will be refined as stakeholders are identified and are participating in the Fire Plan process. Agencies, such as The Nature Conservancy, have played a vital role in identifying the assets within Orange County.

Knowledge of the types and magnitudes of assets at risk to wildland fire, as well as their locations, is critical to fire protection planning. Given the limits on fire protection resources, they should be allocated, in part, based on the magnitude of the assets being protected. Knowledge of assets at risk is necessary to choose those pre-fire management projects that will provide the greatest benefit for a given amount of investment. At this stage of development of the *Wildland Fire Management Plan*, OCFA's primary concern is reducing the fire risk and potential loss of the various assets described here in an effort provide for the safety and protection of life and property while reducing suppression costs.

Assets at Risk

ASSET AT RISK	PUBLIC ISSUE CATEGORY	LOCATION AND RANKING METHODOLOGY
FIRE FLOOD WATERSHEDS	PUBLIC SAFETY PUBLIC WELFARE	WATERSHED WITH A HISTORY OF PROBLEMS OR PROPER CONDITIONS FOR FUTURE PROBLEMS. RANKS ARE BASED ON AFFECTED DOWNSTREAM POPULATIONS.
SOIL	ENVIRONMENT	WATERSHED RANKED BASED ON EROSION POTENTIAL
WATER SUPPLY	PUBLIC HEALTH	1) WATERSHED AREA UP TO 20 MILES FROM WATER SUPPLY FACILITY (HIGH RANK); 2) GRID CELLS CONTAINING DOMESTIC WATER DIVERSIONS, RANKED BASED ON NUMBER OF CONNECTIONS; 3)CELLS CONTAINING DITCHES THAT CONTRIBUTE TO THE WATER SUPPLY SYSTEMS (HIGH RANK)
SCENIC VALUE	PUBLIC WELFARE	FOUR MILE VIEWSHED AROUND SCENIC HIGHWAYS, RANKED BASED ON POTENTIAL IMPACT TO VEGETATION TYPES (TREE VERSUS NON-TREE TYPES)
AIR QUALITY	PUBLIC WELFARE PUBLIC HEALTH ENVIRONMENT	POTENTIAL DAMAGES TO HEALTH, MATERIALS, VEGETATION AND VISIBILITY; RANK BASED ON VEGETATION TYPE AND AIR BASIN
HISTORIC BUILDING	PUBLIC WELFARE	FROM STATE OFFICE OF HISTORIC PRESERVATION; RANK BASED ON FIRE SUSCEPTABILITY
RECREATION	PUBLIC WELFARE	UNIQUE RECREATION AREAS OF AREAS WITH POTENTIAL DAMAGE TO FACILITIES, RANK BASED ON FIRE SUSCEPTABILITY
STRUCTURES	PUBLIC WELFARE PUBLIC SAFETY	RANK BASED ON HOUSING DENSITY AND FIRE SUSCEPTABILITY
NON-GAME WILDLIFE	PUBLIC WELFARE ENVIRONMENT	CRITICAL HABITATS AND SPECIES LOCATION BASED ON INPUT FROM CALIFORNIA DEPT. OF FISH AND GAME AND OTHER STAKEHOLDERS
GAME WILDLIFE	ENVIRONMENT PUBLIC WELFARE	CRITICAL HABITATS AND SPECIES LOCATION BASED ON INPUT FROM CALIFORNIA DEPT. OF FISH AND GAME AND OTHER STAKEHOLDERS
INFRASTRUCTURE	PUBLIC WELFARE PUBLIC SAFETY	INFRASTRUCTURE FOR DELIVERY OF EMERGENCY AND OTHER CRITICAL SERVICES (I.E. REPEATER SITES, TRANSMISSION LINES)

Stakeholders

In order to assess all wildlands, this plan utilizes an integrated inter-governmental approach. State, local and federal wildland fire protection agencies are identified. The objective of this approach is to identify high risk, high value areas and develop solutions to reduce costs of large and damaging fires. While the vast majority of wildland fires occurrence in Orange County is along major transportation corridors, this plan will include all areas of Orange County. Our partners include but are not limited to:

- Federal Agencies
  - USDA Forest Service - Cleveland National Forest
  - USDI - Fish and Wildlife
  - DoD - Marine Corp Camp Pendleton

- State of California
  - Department of Forestry and Fire Protection
  - Department of Parks and Recreation
  - Department of Fish and Game

- County of Orange
- The Cities of:

Aliso Viejo	Buena Park
Cypress	Dana Point
Irvine	Laguna Hills
Laguna Niguel	Laguna Woods
Lake Forest	La Palma
Los Alamitos	Mission Viejo
Placentia	Rancho Santa Margarita
San Clemente	San Juan Capistrano
Seal Beach	Stanton
Tustin	Villa Park
Westminster	Yorba Linda

Private and Quasi-Public Stakeholders

Stakeholders are defined as any person, agency or organization with a particular interest, i.e.; a stake, in fire safety and protection of assets from wildland fires. Stakeholders within Orange County will validate asset information, identify unacceptable risk to their assets, and assist in defining solutions. Participation of individuals from the following list of organizations is welcome.

- Private individuals / property owners.
- Agro-industry utilizing open lands.
- Corporate entities holding lands or conducting business in areas at risk.
- Home and property owners associations.
- Real Estate and Business Associations.

- Coordinated Resource Management Planning Committees (CRMP).
- The Nature Conservancy.
- The Nature Reserve of Orange County (NROC).
- Firesafe Councils and Alliances.
- Water companies relying on watershed areas.
- Electric companies concerned with power generation and distribution.
- Railroads and other transportation entities traversing wildlands.
- Communications companies with facilities sited on or traversing wildlands.
- Agricultural commissions, boards, committees and associations.
- Habitat conservation groups.
- Groups and associations promoting various outdoor activities.
- Historical societies.
- Tourism and commerce promoting groups.
- Petroleum / Natural Gas pipeline companies.

It is an objective of the Wildland Fire Management Plan that those who benefit from the protection of an asset should also share in the costs for protecting that asset. Asset stakeholders are encouraged to provide financial support for the projects that provide significant benefits to their assets at risk. Therefore, it will be necessary to develop a cost share formula that will identify multiple benefactors of a particular project.

3. Success Ratio.

The level of service rating used in this plan will be expressed as a percentage representing the number of incidents where initial attack efforts succeeded. Successful initial attack is defined in terms of the amount of resources needed to suppress the fire and of fire intensity. It is that effort which contains the wildland fire within an acceptable size of 100 acres or less, the level of resource commitment, acceptable suppression cost and minimal damage to assets at risk. Therefore:

$$\text{SUCCESS RATIO} = \frac{\text{number of successful initial attacks}}{\text{Total number of initial attack}} \times 100$$

During the analysis period of 1991-2000, Orange County Fire Authority responded to a total of 834 wildland fires, of which 820 wildland fires were contained at less than 100 acres. Therefore, the Success Ratio is calculated:

$$\frac{\text{820 Successful responses}}{\text{834 Total responses}} \times 100 = \textbf{98.32\% Success Ratio}$$

The following maps graphically indicate the Success Ratio ranking for the County:
- Initial Attack Fire Workload (Fig. 7)
- Initial Attack Failure Density (Fig. 8)

However, it must be noted that a significant problem was encountered when calculating the initial attack success rate due to the scarcity of data from the 10-year analysis period.

This became apparent when statistics pointed to a 100% success or failure ratio when there was only one incident in a Fire Response District; many FRDs are in this situation. Combining similar districts to increase size of the statistical base helps smooth out some difficulties created by sparse data. Another dominant problem was duplicate entries for the same incident, thus inflating the actual wildland fire business workload.

4. Hazardous Fuels

Vegetation found within the County include annual grasses, woodland, desert brush, riparian, timber, coastal sage scrub and chaparral. Chaparral is a mosaic of vegetation communities whose establishment is essentially determined by fires and micro-site conditions. "Hard" chaparral, for the present purposes, is identified as vegetation dominated by chamise, scrub oak or shrub forms of canyon live oak or interior live oak. It occupies an elevation position generally between low elevation coastal sage scrub (a form of "soft" chaparral) and higher coniferous areas.

Assets have a high likelihood of being destroyed in chaparral, grass and transition fuel types. The annual grasses support fast moving but lower intensity fires. The coastal sage scrub supports fast moving fires with higher intensities. The chaparral fuels sustain very high intensities and spotting problems.

Again, GIS thematic layers have been developed to determine the hazardous fuels throughout Orange County. The first layer development included vegetation coverage from the most recent and detailed vegetation composition and structure information (Fig. 9). Vegetation data was collected by the California Department of Forestry and Fire Protection's Fire Resource Assessment Program, from a variety of sources and merged together to provide a complete, albeit heterogeneous, coverage map. Additionally, a variety of crosswalk methodologies from previous statewide projects were incorporated to filter the vegetation coverage and translate the data to a Fire Behavior Prediction System (FBPS) fuel model. Orange County Fire Authority supplemented this by a crosswalk of data from the Cleveland National Forest, Orange County vegetation mapping program and the GAP Analysis program of the U. S. Fish and Wildlife Service in defining the County's fuel model coverage. This method produced a fine-grained portrayal of surface fuel types as the second layer (Fig. 10).

Fuel hazard ranking methodology assigns ranks based on expected fire behavior for unique combinations of topography and vegetative fuels under given severe weather conditions (wind speed, humidity, and temperature). Basically, the ranking procedure is best described in a formula:

Fuel Model + Slope = Surface Ranking
Then
Surface Rank + Ladder Index + Crown Index = Hazard Ranking

Throughout California the Hazard Rank is broken into three (3) categories:

Moderate, High and Very High. Figure 11 shows areas within Orange County that are categorized as Moderate to represent urbanized areas, High to represent wildland urban interface and Very High representing the wildland areas.

Crown and Ladder Fuel Characteristics

The method ascribes additional ladder and crown fuel indices to surface model polygons. If the vegetation data provide sufficient structural detail, the method imputes these additional indices from those data. If the vegetation data lack structural detail, the method imputes indices based on the fuel model.

The ladder and crown fuel indices convey the relative abundance of these fuels. The indices take values ranging from 0 to 2, with 0 indicating “absent", 1 representing “present but spatially limited” and 2 indicating “widespread”. These indices contribute to understanding the probability that torching and crown fire would occur if the stand were subjected to a wildland fire under adverse environmental conditions.

Based on the above methodology the third GIS layer produced a fuel hazard ranking by changing the base map to reflect surface fuel characteristics as a result from past fires, and to account for fuel changes as burned areas re-grow (Fig.11). A study will be performed to evaluate post-fire fuel conditions based on comparisons of pre-fire fuel models and the span of time, since the fire occurred. The results will be sent to the California Department of Forestry and Fire Protection (CDF) Fire Resource Assessment Program (FRAP) to establish future crosswalks. FRAP, a division of CDF, assesses the amount and extent of California's forests and rangelands, analyzes their conditions and identifies alternative management and policy guidelines. This method updates the base map by overlaying fire perimeters on the fuel types, calculating the span of time since the fire for each burned area, then changes the fuel model within the burned area according to the crosswalk.

5. Historical Fire Weather.

All areas of the county have been assigned a weather station in order to establish a link to weather data. To support this process, CDF Fire Resource Assessment Program (FRAP) has compiled a statewide list of weather stations with adequate data to determine numbers of days of severe weather. CDF FRAP has designated two weather stations, one located in Orange County near Bell Canyon and a second located in San Diego County near Las Flores, to determine the number of days experiencing severe fire weather within Orange County (Fig. 12).

Determinations by OCFA that the CDF FRAP designated weather stations do not best represent the areas of the county that has the greatest fire history. Ideally the best weather station assignment is the closest weather station that has a complete stream of data and is within the same proximity that fire weather is being forecasted. To meet this ideal condition, OCFA used the Fremont RAWS (Remote Automated Weather Station) adjacent to Windy Ridge Road, north of Irvine Lake and east of the 241 Transportation Corridor. Fremont RAWS was chosen for the following:

- This station best represents the areas of proximity, similarities of weather, elevation, and topography that influence a greater percentage of fire histories within the county.
- During the past 10 year period of, Fremont RAWS has 3446 days of record out of a possible total of 3651 days, a 94% margin of accuracy.

To establish severe fire weather conditions within the county OCFA used a simplistic approach by arbitrarily using three (3) weather attributes with predetermined daily maximum thresholds.

- Air temperature of 90º F or greater
- Relative humidity 30% or less and
- Wind speed 10 mph or greater

A correlation of these three attributes over the 10-year period of 1992-2001 revealed that severe fire weather could be experienced:

- An average of 6 days (1%) per year, that all three attributes, at threshold, will either be met or exceeded.
- An average of 26 days (7%) per year when using only a combination of air temperature and wind speed attributes and thresholds.
- An average of 34 days (10%) per year when using any combination of 2 of 3 attributes and thresholds.

However, and possibly more important, a comparison of the weather attribute thresholds for the date of origin of any wildland fire exceeding 100 acres indicates, though not guaranteed, that when any combination of 2 of 3 are met there is increased risks of large and damaging wildland fires. This is represented in the following table.

FIRE NAME	ACRES	ALARM DATE	TEMP MAX	RH MAX	WIND SPEED	TEMP MIN	TEMP AT 1300 HRS	RH MIN	RH AT 1300 HRS
Stagecoach	581.45	19931026	84	28	37	71	83	4	7
Ortega	21,010.29	19931027	77	7	43	69	76	4	6
Laguna Fire	14,336.68	19931027	77	7	43	69	76	4	6
Ridge Line	706.34	19940624	94	36	12	73	90	15	32
Carbon Canyon (Wagon)	757.45	19940625	94	31	14	76	90	8	26
Live Oak	160.11	19940821	83	100	14	59	82	45	46
Hwy 91	176.56	19950826	93	30	12	73	89	2	13
Coto	197.58	19970529	95	66	14	69	91	25	26
Santiago	338.12	19970902	94	59	13	70	93	35	36
Baker	6,319.53	19971013	81	15	28	64	77	9	10
Santiago Canyon	7,759.92	19980831	104	47	9	81	102	20	23
Carbon Canyon	733.47	19980831	104	47	9	81	102	20	23
TRW	445.08	20000911	101	21	8	71	97	4	11

6. Develop a Wildland Fire Strategy.

The Wildland Fire Strategy involves a variety of elements that require a review at each stage of the planning process. Furthermore, the strategy will identify areas that have adequate protection, areas needing additional fuels treatments, recommended types of treatment (mechanical or prescribed fire) and identify ramifications if no action is taken

on recommendations. An example of this would be, based on fire history, it is determined that large or active wildland fires occur in a predetermined area. However, due to past community or development encroachment into this particular area, a determination that a simple fuels treatment or modification is needed, or based on the extent of development, no action is required. Another example would be: planned community or development encroachment compared to historical data concerning fire occurrence, a determination that relocation of existing, or additional, fuelbreaks will enhance any fuel modification required by fire codes; otherwise the potential lose of life and property increase.

It is not intended to include site specific plans in this plan. Rather site-specific plans, when developed and approved, will be on file in the office of the OCFA Wildland Fire Defense Planner and will represent a program of work for OCFA. Refer to the Appendices for a descriptive list and maps of target areas and proposed projects.

Site-specific plan development will:

- Use information about fire regimes, current conditions and management objectives as a basis to develop goals and objectives for the management of fire. Use new knowledge and monitoring results to revise goals, objectives and actions.

- Address all potential wildland fire occurrences and include a full range of fire management actions. Include all wildlands, not just the State Responsibility Areas (SRA).

- Create wildland fire management compartments in which programs or projects can be implemented to reduce the risks to citizens and firefighters. Examples of management units are pre-identified areas where vegetation can be manipulated, creating fuelbreaks, areas of thinned vegetation or mosaic patterns or that will be cost effective and provide for the safety and protection of life and property.

The Wildland Fire Strategy will identify and gain concurrence of partners and stakeholders on implementation of the plan. The strategy will:

- Create a strong fiscal policy to focus and describe the wildland fire protection system in fiscal terms. This will include all public/private expenditures and economic losses.

- Identify and analyze key policy issues and develop recommendations for changes in public policy. Analysis will include alternatives to reduce total costs and/or increase fire protection system effectiveness.

- Identifying for state, federal and local officials and for the public those areas of concentrated assets and high risk.

- Allowing wildland fire service providers to create a more efficient fire protection system focusing on meaningful solutions for identified problem areas.

- Giving citizens an opportunity to identify public and private assets to design and carry out projects to protect those assets.

- Identifying, before fires occur, where cost-effective pre-fire management investments can be made to reduce taxpayer costs and citizen losses from wildland fire.

- Encouraging an integrated inter-governmental approach to reducing costs and losses.

- Enabling policy makers and the public to focus on what can be done to reduce future costs and losses from wildland fires. Identify and communicate with the stakeholders. Stakeholders may be other government agencies, private landowners, and service groups or homeowners associations. The stakeholders are identified at the end of this plan.

ISSUES AND RECOMMENDATIONS

Issue:

The ecological processes, including wildland fire and other disturbance, and changing landscape conditions are often not integrated into management planning and decisions. With few exceptions, existing land management planning tends to be confined within individual agency or departmental jurisdiction boundaries. This is partly due to being directed by agency or departmental mission and policy and or simply based on the goals of a single program.

Recommendations:

OCFA management planning must consider the risks, probabilities, and consequences of various management strategies of hazard mitigation, e.g., fire use vs. fire exclusion. In a responsive planning process, management decisions must be monitored, integrated and supported at each step.

OCFA management must understand and accept the need to integrate all forms of hazardous fuel reduction techniques, including the use of prescribed fire, into management plans and objectives. This integration must be reconciled with other societal goals, e.g., maintaining a healthy ecosystem, producing commodities, protecting air and water quality, and above all, the protection of human life and property.

OCFA management must recognize the importance of hazardous fuel reduction through the development of management plans that delineate a program of work to provide a safe environment in the wildlands. The plan will outline a course of action, that when accomplished, will provide for protection of life and property while reducing the potential devastating effects from an unplanned wildland fire.

OCFA management must work in unison with our stakeholders and encourage them to accept and understand to role of hazardous fuel reduction programs. We will encourage stakeholders to either participate with OCFA as we work toward meeting our goals in the OCFA Wildland Fire Management Plan or to develop their own plans in which OCFA may enter into effective cooperative efforts to provide assistance. Either way, stakeholders will share in the opportunity and responsibility of protecting our communities.

Likewise, management needs to focus on protection goals to determine a success ratio of initial attack when responding to the unplanned wildland fire ignitions. The ratio should be indicative of levels at which the unplanned wildland fire is considered excessive or unacceptable either in final size (acres burned) or cost of suppression. Other factors for review can be added as required.

Issue:

Several factors tend to constrain attempts, either prescribed fire or mechanical, to reduce hazardous fuels on a significant scale.

First, favoring the status quo often times impede progress. Managers may feel the need to wait for certainties (scientific or otherwise) before taking action. Hesitation due to the devastating results of past failures, or a lack of new or better techniques, will hinder the manager and delay implementation.

Second, management plans may not be in place thus precluding managers from taking advantage of options presented by influencing factors.

A third constraining factor is the increasing human settlement that encroaches upon wildlands (wildland urban interface). Orange County history supports the concept that wildfire is an accepted way of life. In early times, wildland fire, under extreme conditions, would grow into an uncontrollable monster that would be influenced only by weather. With the small and scattered populations, humans often fell victim to wildfire. As populations grew, and continue to grow, the areas of wildlands are becoming fragmented, isolated and shrinking.

Smoke is yet another perceived factor that may affect managers' ability to use wildland fire on a large scale or frequency to restore and maintain fire-dependent ecosystems. Federal, State, County and local governments have developed standards (even though many are considered as constraints) that set air quality standards for pollutants that affect public health. There are many examples of fire agencies and local air quality authorities successfully working together to accomplish objectives, resolve conflicts and avoid violation of air quality standards.

Recommendations:

First, OCFA management must continually review hazardous fuels reduction plans and must consider values to be protected, management objectives and environmental conditions.

Second, OCFA must embrace the concept that the threat is changing, from the wildland fire threatening humans, to the single- or multi-structure fire that escapes into the wildlands, thus destroying the shrinking wildlands, ecosystems and aesthetic values. OCFA must prepare to deal with providing a protection system that will be considered a "two-way street".

Third, OCFA must plan and implement actions in areas where planning has determined a wide range of appropriate management activities, treatments by use of fire or mechanical means, and that these opportunities should be implemented as safely and cost-effectively as possible to accomplish goals and objectives.

OCFA needs to be a leader in efforts to continue successful interagency conflict

resolution to enhanced cooperation and understanding the roles of smoke management and to insure the use of planned wildland fire use in the future.

Issue:

For many people, wildland fire remains a fearsome, destructive force that can and should be controlled at all costs. Smokey Bear's simple, time honored "only you" fire prevention message has been so successful that any complex talk about the healthy role of fire in the ecosystem is often lost or quickly squelched.

Another segment of the population feels that any type of disturbance to the ecosystem, either by fire, by hand or by mechanical means, is unwarranted. The concepts of letting nature run its course has repeatedly proven to costly both too the environment and populace.

Recommendations:

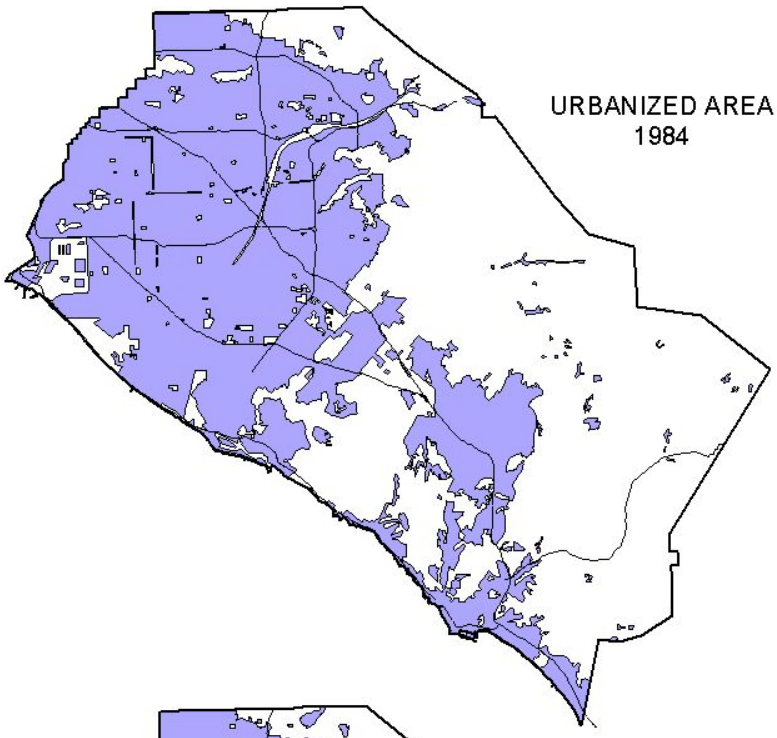
OCFA must develop a comprehensive message is that clearly conveys the desired balance of avoiding wildland fires with adverse effects while simultaneously increasing the knowledge and use of prescribed fire for the protection of human life and property and the benefit of the ecology. Stated again, Orange County histories supports the fact that fire is a way of life, we must protect ourselves from the hazards of wildland fire and prevent losses to the optimum extent possible.

OCFA must periodically review this plan with stakeholders for additional input and a focused group of stakeholders potentially affected by or benefiting from specific pre-fire projects will be conducted for cost share determination.

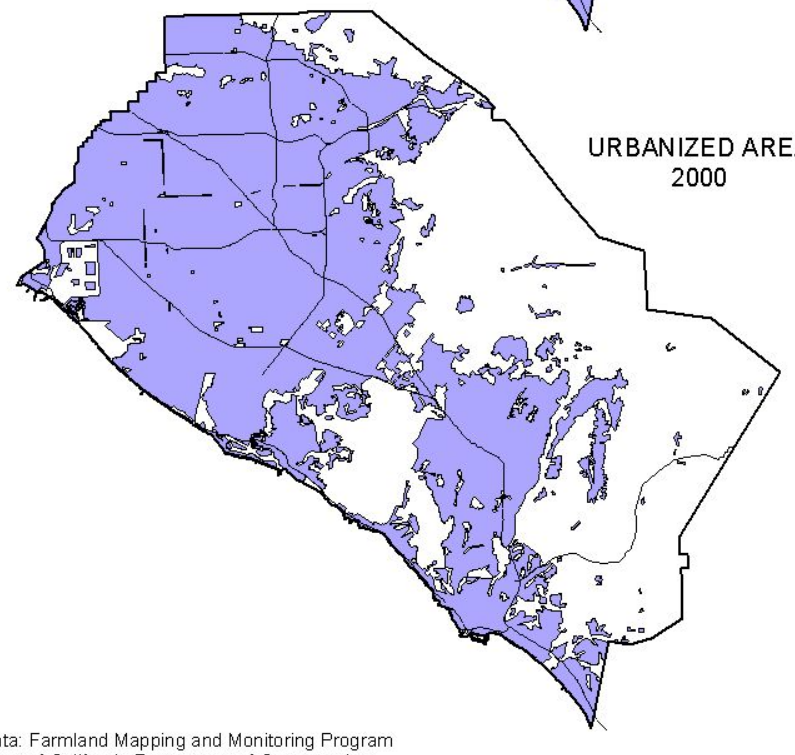
OCFA must develop a cost-share formula to aid in the decision process and insure that funding sources are identified and acquired to support and insure that pre-fire projects will be implemented.

SUPPORTING DOCUMENTS

Appendix A. Wildland Fire Management Planning Maps and Tables.



URBANIZED AREA
1984



URBANIZED AREA
2000

Data: Farmland Mapping and Monitoring Program
State of California Department of Conservation
Division of Land Resource Protection (ftp.consrv.ca.gov/pub/dlrp/fmmp)

FIGURE 1
URBAN GROWTH

f:\fireplan\fireplan.apr May 2002

NUMBER	FIRE NAME	YEAR	ACRES
1	UNKNOWN	1914	18,754
2	UNKNOWN	1915	1,794
3	UNKNOWN	1917	3,164
4	UNKNOWN	1918	556
5	UNKNOWN	1919	200
6	UNKNOWN	1919	2,225
7	UNKNOWN	1920	2,724
8	UNKNOWN	1921	819
9	UNKNOWN	1921	412
10	UNKNOWN	1922	151
11	UNKNOWN	1923	2,150
12	UNKNOWN	1923	979
13	UNKNOWN	1925	8,650
14	UNKNOWN	1926	9,934
15	UNKNOWN	1927	1,857
16	UNKNOWN	1928	231
17	UNKNOWN	1929	1,085
18	UNKNOWN	1937	4,916
19	UNKNOWN	1942	191
20	UNKNOWN	1943	1,930
21	UNKNOWN	1943	2,727
22	UNKNOWN	1944	495
23	SHELL	1947	118
24	GREEN RIVER	1948	53,079
25	TORO	1950	729
26	NOHL	1951	176
27	INDIAN POTRERO	1952	5,604
28	WIEGAND	1954	4,956
29	JAMESON	1954	7,881
30	NIGER	1955	1,606
31	CORNWELL	1956	3,173
32	IRVINE LAKE	1956	113
33	TALEGA	1957	347
34	SHOESTRING	1957	437
35	UNKNOWN	1958	11,774
36	SANTIAGO	1958	110
37	KELLY	1958	2,380
38	STEWARD	1958	69,444
39	TALEGA	1959	3,187
40	BLIND	1959	1,575
41	LA VIDA	1959	611
42	UNKNOWN	1961	5,273
43	OUTSIDE ORIGIN #2	1961	5,019
44	OUTSIDE ORIGIN #6	1961	339
45	UNKNOWN	1962	139
46	UNKNOWN	1963	168
47	INDIAN	1966	1,405
48	PASEO GRANDE	1967	51,075
49	FIRESTONE FIRE	1967	236
50	UNKNOWN	1968	688
51	NELSON	1970	3,586
52	EL TORO	1970	413
53	CLEMENTE	1973	166
54	UNKNOWN	1975	390
55	GRUNDY	1975	1,915
56	UNKNOWN	1976	164
57	TONNER	1976	204
58	PENDELTON	1976	2,111
59	WAGON WHEEL	1976	491
60	HARVESTER	1976	526
61	MINE	1977	4,956
62	UNKNOWN	1978	330
63	SOQUEL	1978	5,428
64	UNKNOWN	1979	591
65	PASEO	1979	3,644
66	ORTEGA	1979	696
67	NIGUEL	1979	302
68	BOAT(LAGUNA)	1979	455
69	OWL	1980	18,332
70	CARBON CYN	1980	14,613
71	INDIAN	1980	28,938
72	GYPSUM	1982	20,142
73	LOMA RIDGE	1984	1,435
74	MODJESKA	1984	1,018
75	COAL CANYON	1984	450
76	GREEN RIVER FIRE	1985	135
77	UNKNOWN	1985	540
78	SHELL	1985	1,635
79	BEDFORD 1	1986	2,956
80	BEDFORD 2	1987	4,070
81	SILVERADO	1987	6,018
82	ORTEGA	1988	2,471
83	ORTEGA	1989	8,170
84	ASSIST 108	1989	13,478
85	MONARCH	1990	101
86	CARBON CYN	1990	6,664
87	YORBA	1990	7,884
88	PICO	1991	222
89	STAGECOACH	1993	581
90	LAGUNA FIRE	1993	14,337
91	ORTEGA	1993	21,010
92	RIDGE LINE	1994	706
93	CARBON CYN	1994	757
94	LIVE OAK	1994	160
95	HWY 91	1995	177
96	COTO	1997	198
97	SANTIAGO	1997	338
98	BAKER	1997	6,320
99	CARBON CYN	1998	733
100	SANTIAGO CYN	1998	7,760
101	TRW	2000	445
102	GREEN	2002	2,234
103	EVENING	2002	893
104	ANTONIO	2002	1,480
105	AVERY	2002	130
106	BLUE GUM	2002	497

TABLE 1

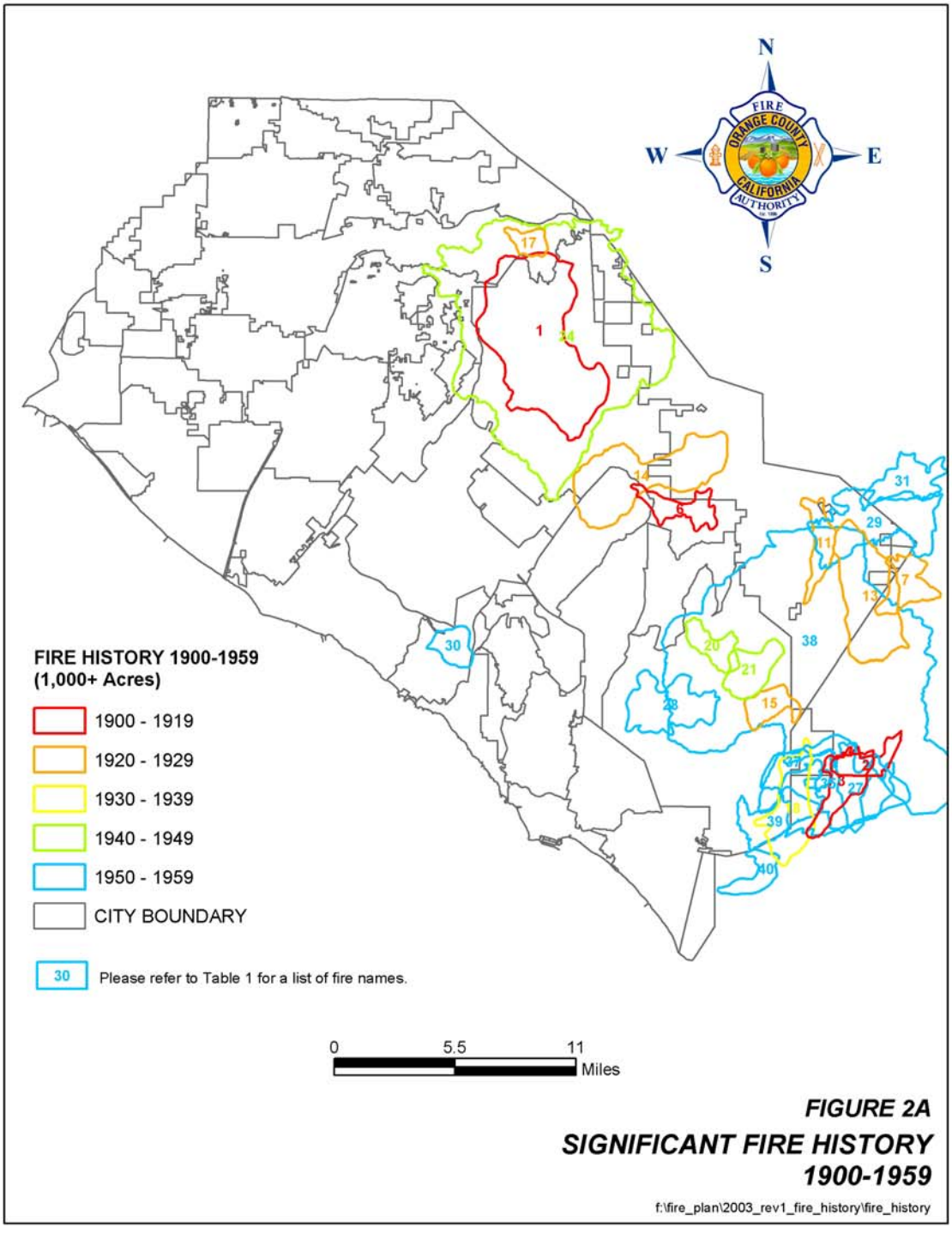


FIGURE 2A

SIGNIFICANT FIRE HISTORY 1900-1959

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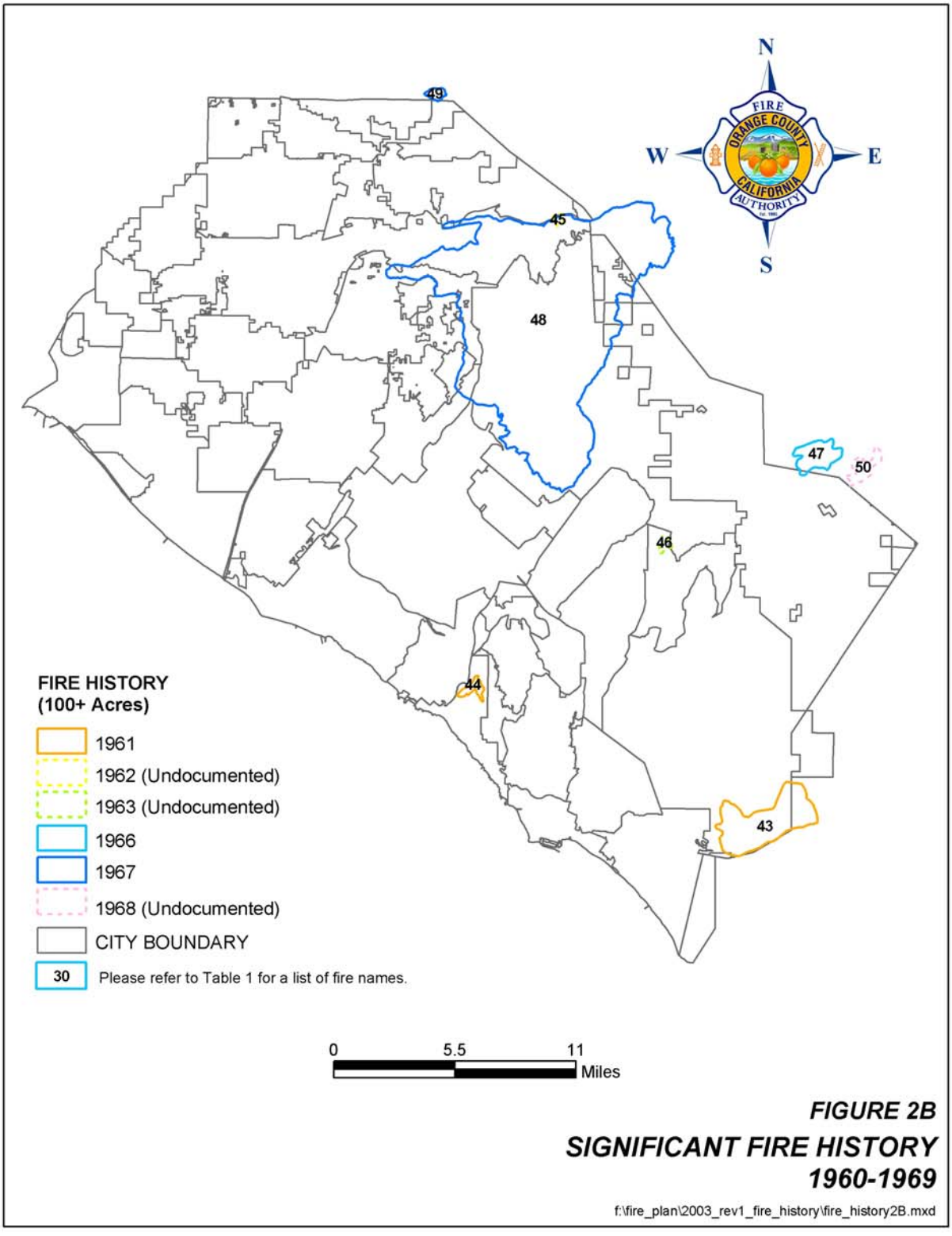

FIGURE 2B

SIGNIFICANT FIRE HISTORY
1960-1969

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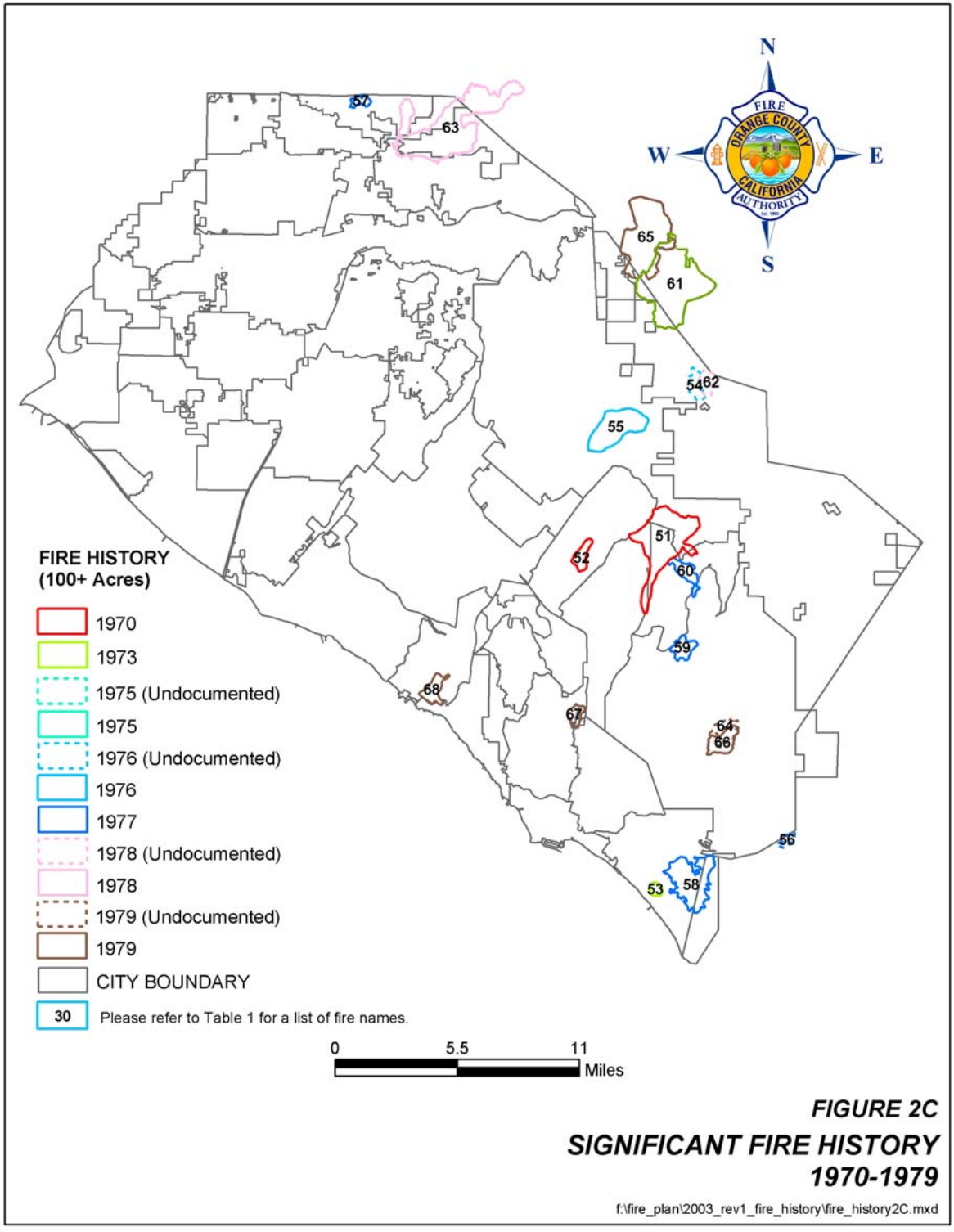

FIGURE 2C

SIGNIFICANT FIRE HISTORY
1970-1979

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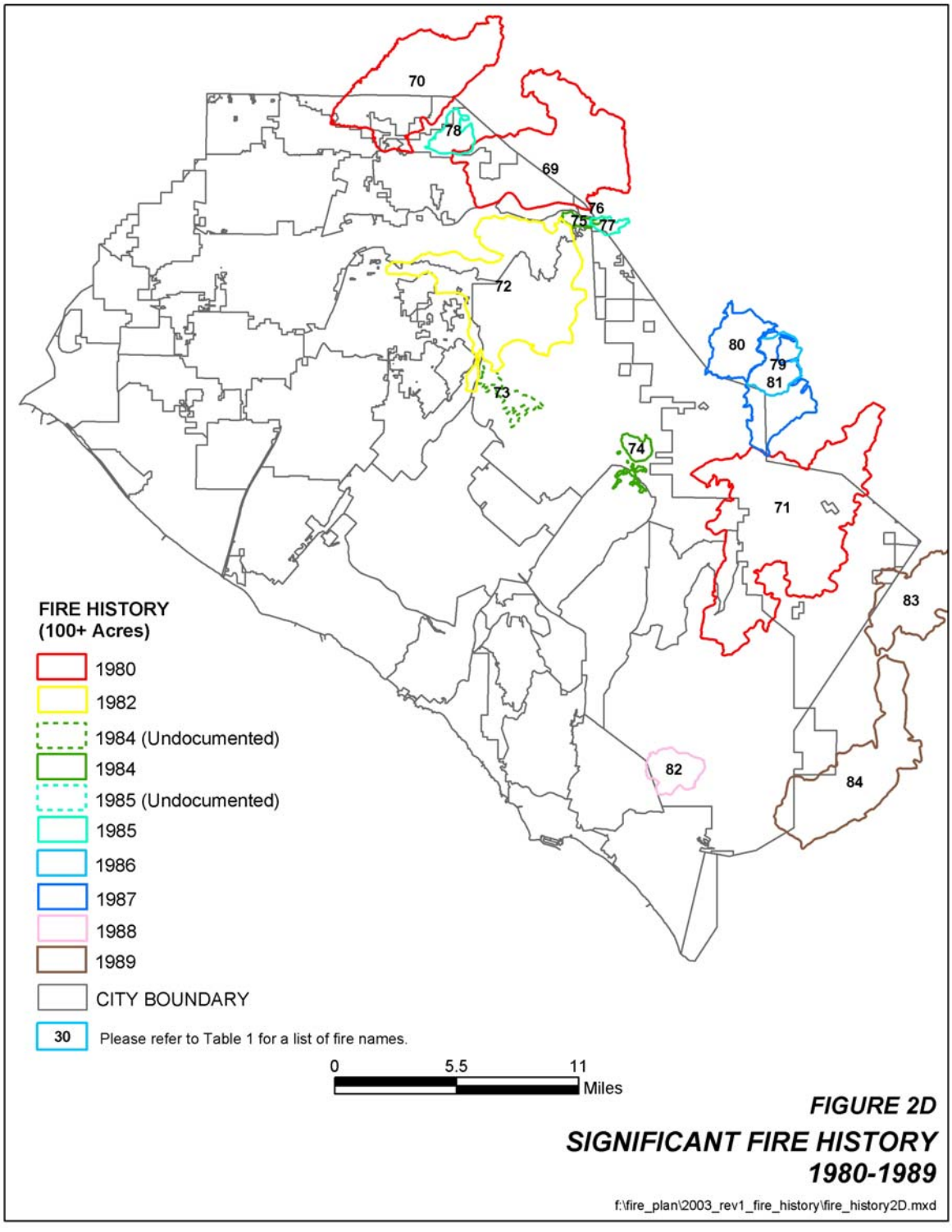

FIGURE 2D

SIGNIFICANT FIRE HISTORY 1980-1989

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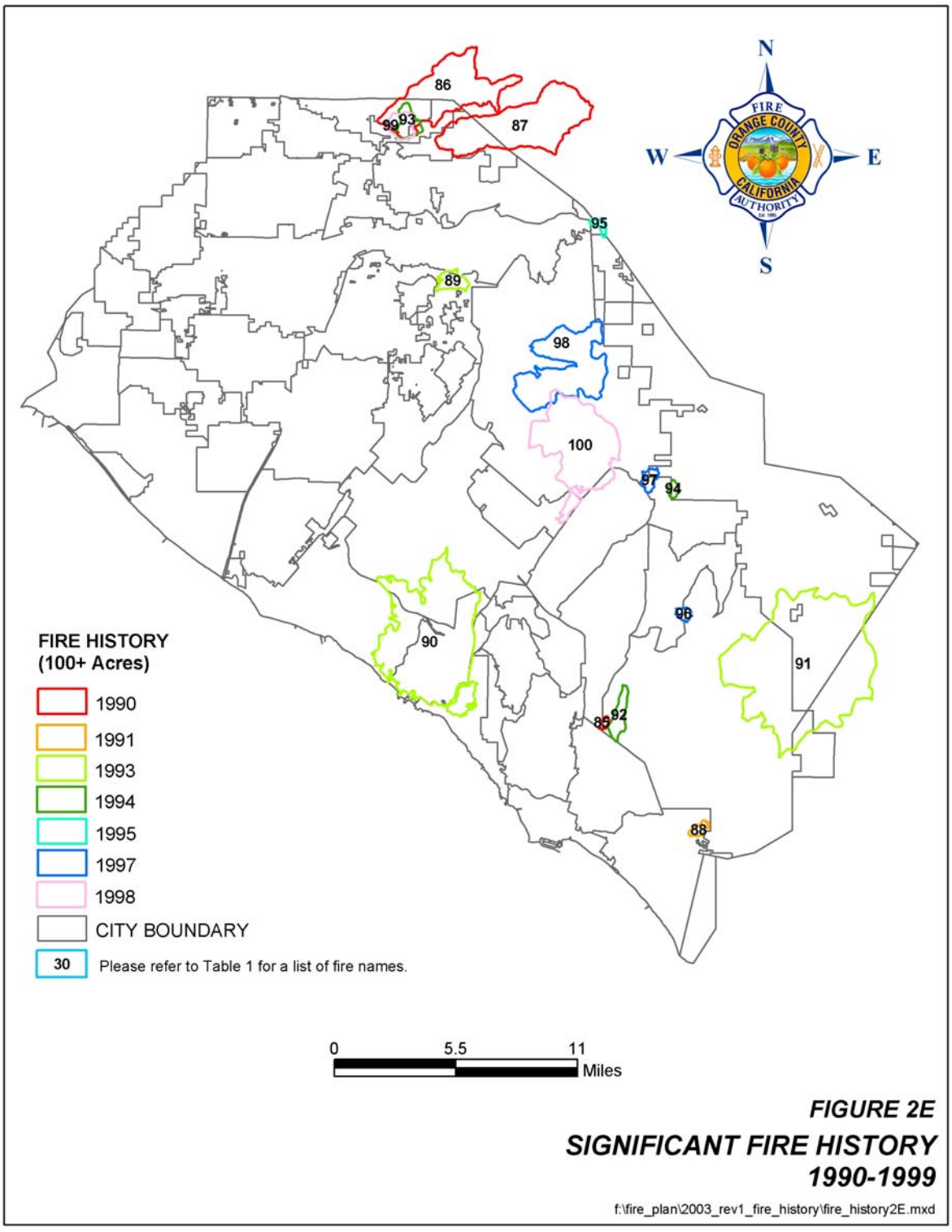

FIGURE 2E

SIGNIFICANT FIRE HISTORY
1990-1999

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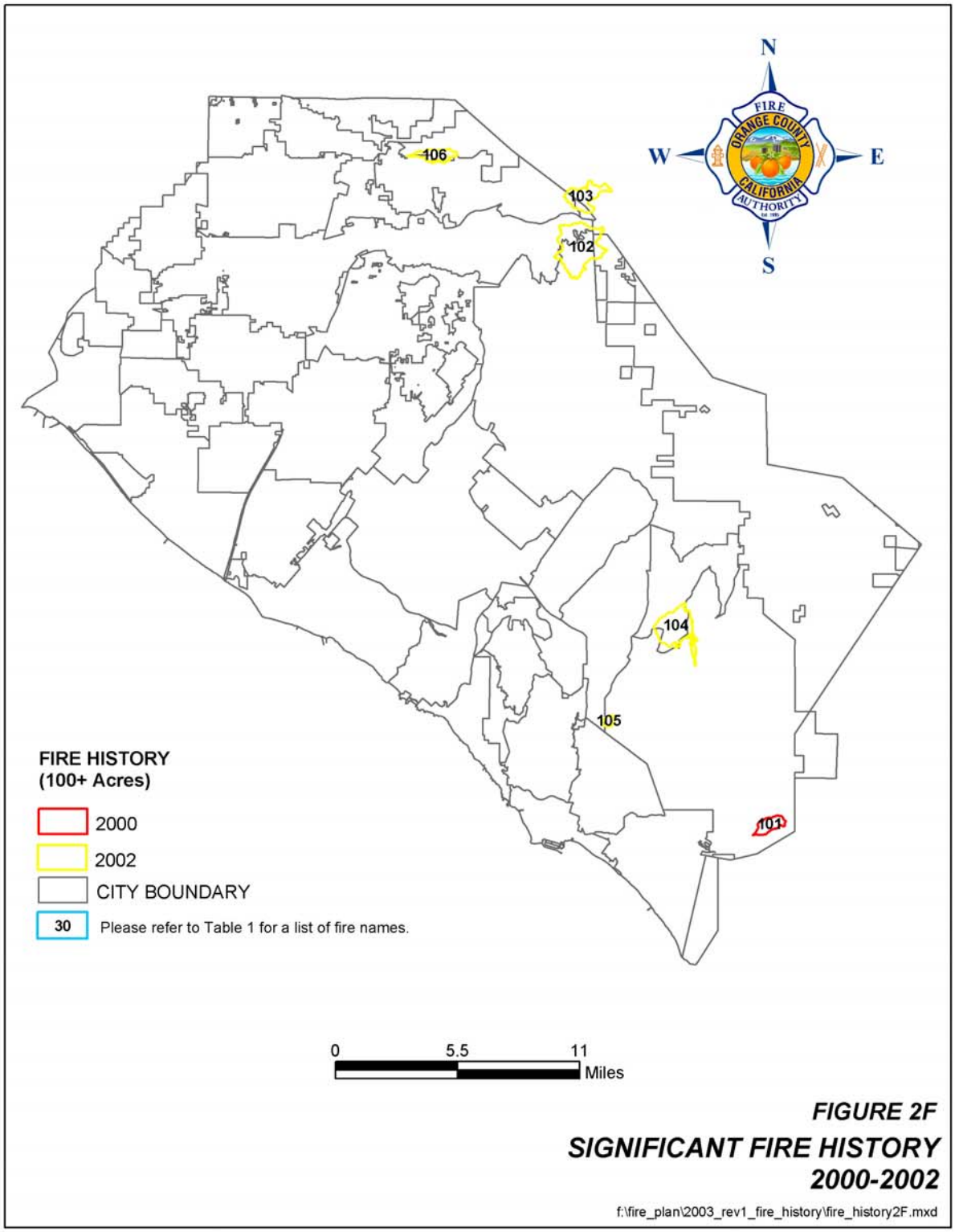

FIGURE 2F

SIGNIFICANT FIRE HISTORY
2000-2002

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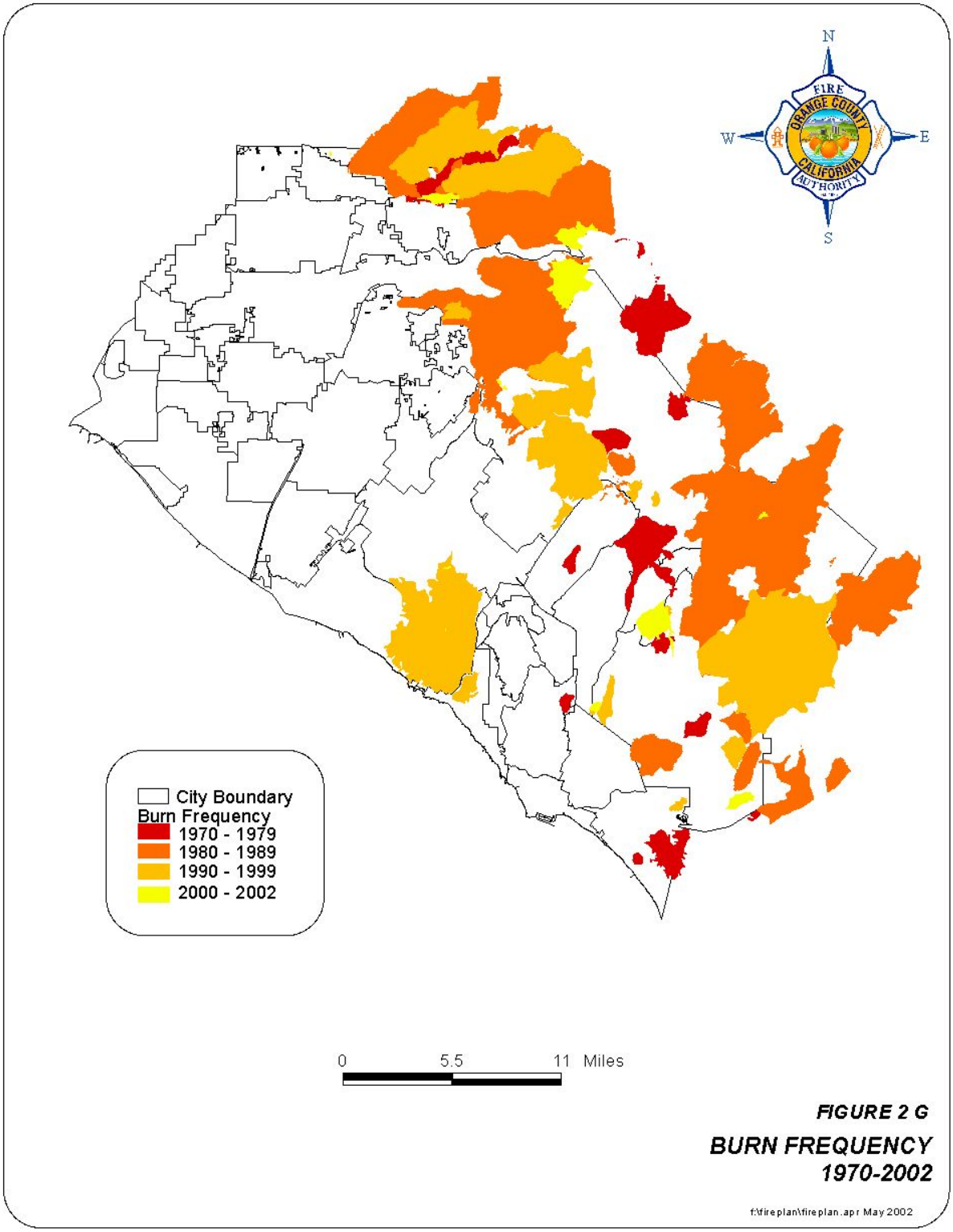

FIGURE 2 G

BURN FREQUENCY
1970-2002

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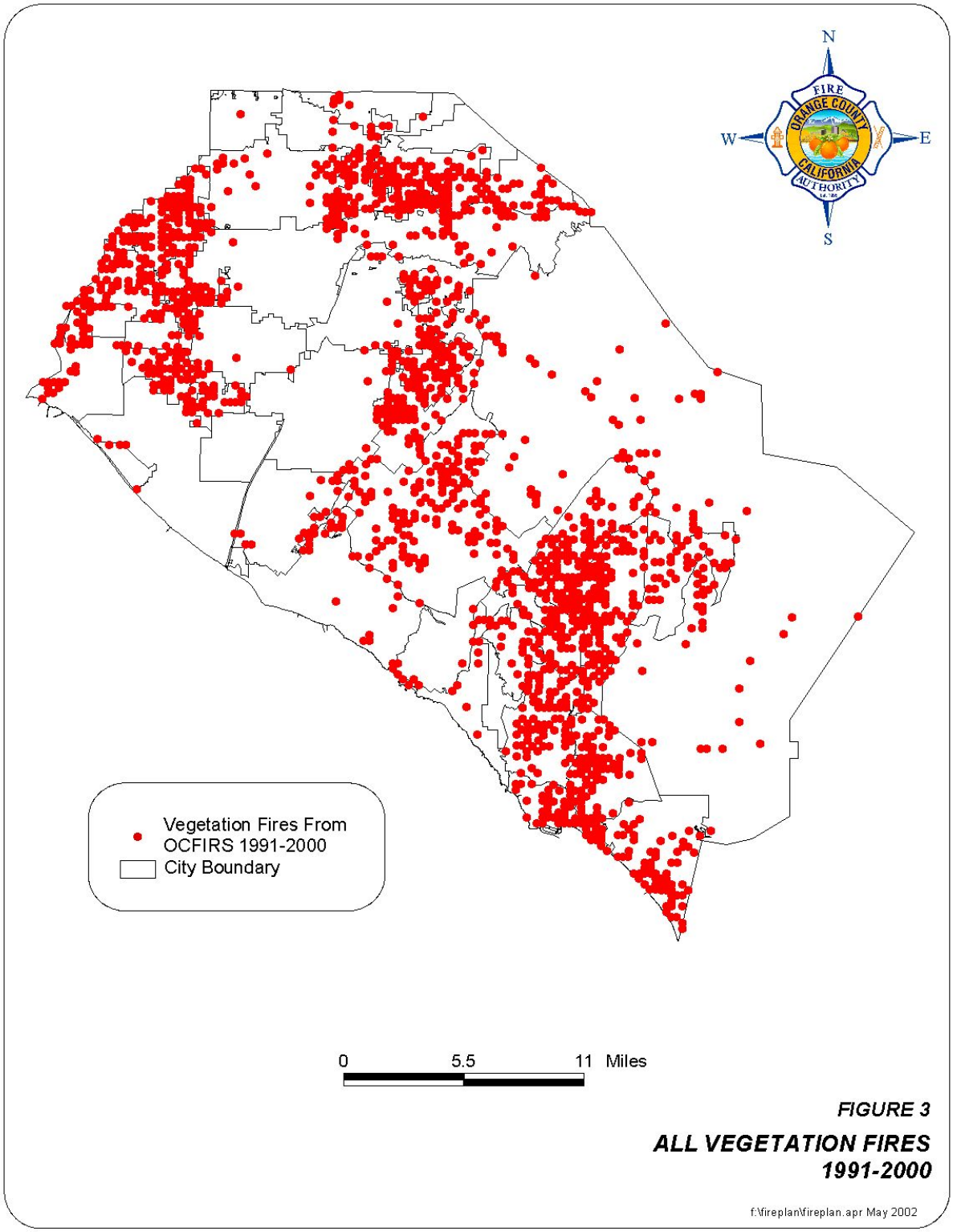

FIGURE 3

ALL VEGETATION FIRES
1991-2000

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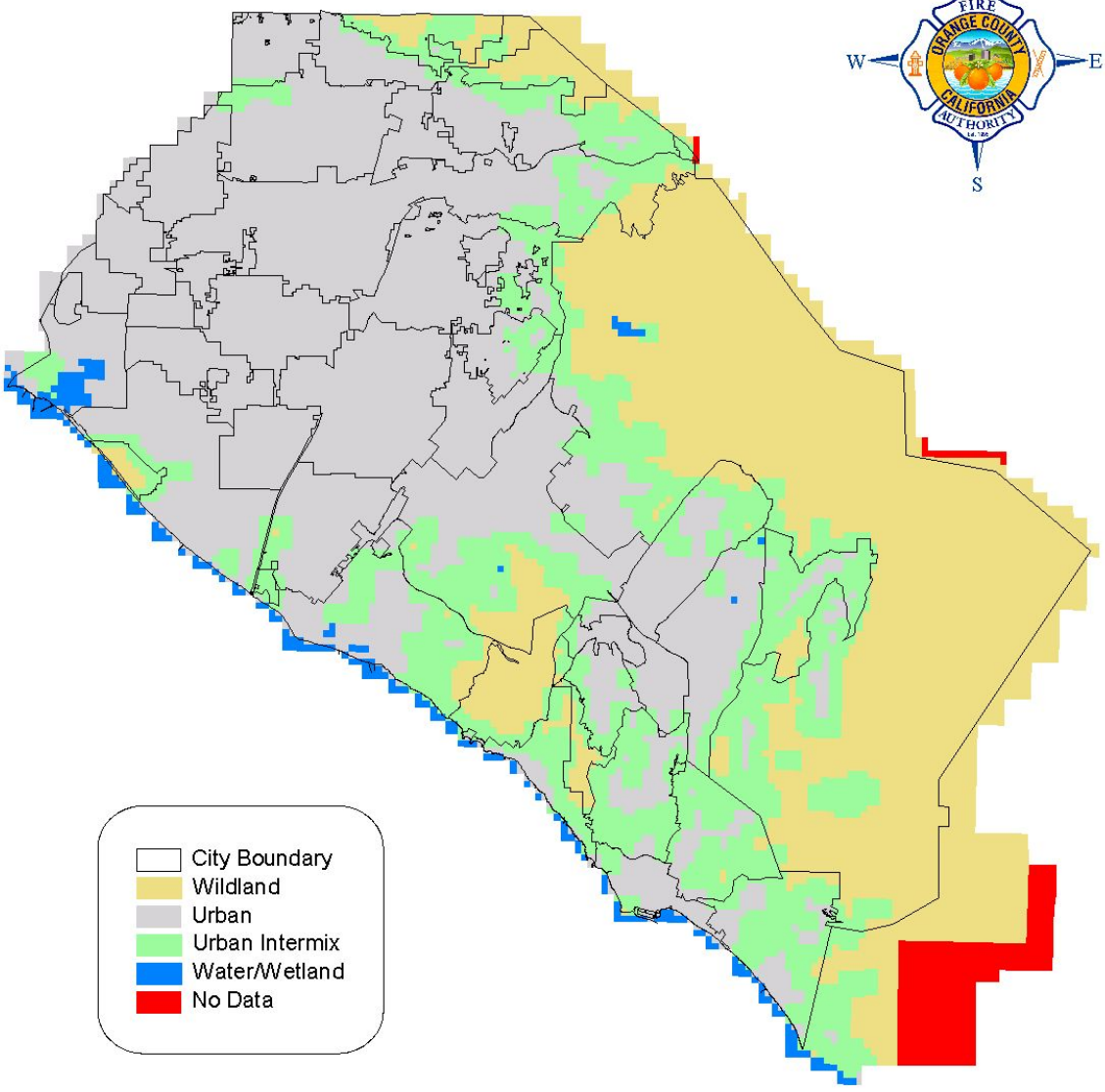

FIGURE 4

WILDLAND - URBAN INTERMIX
2001

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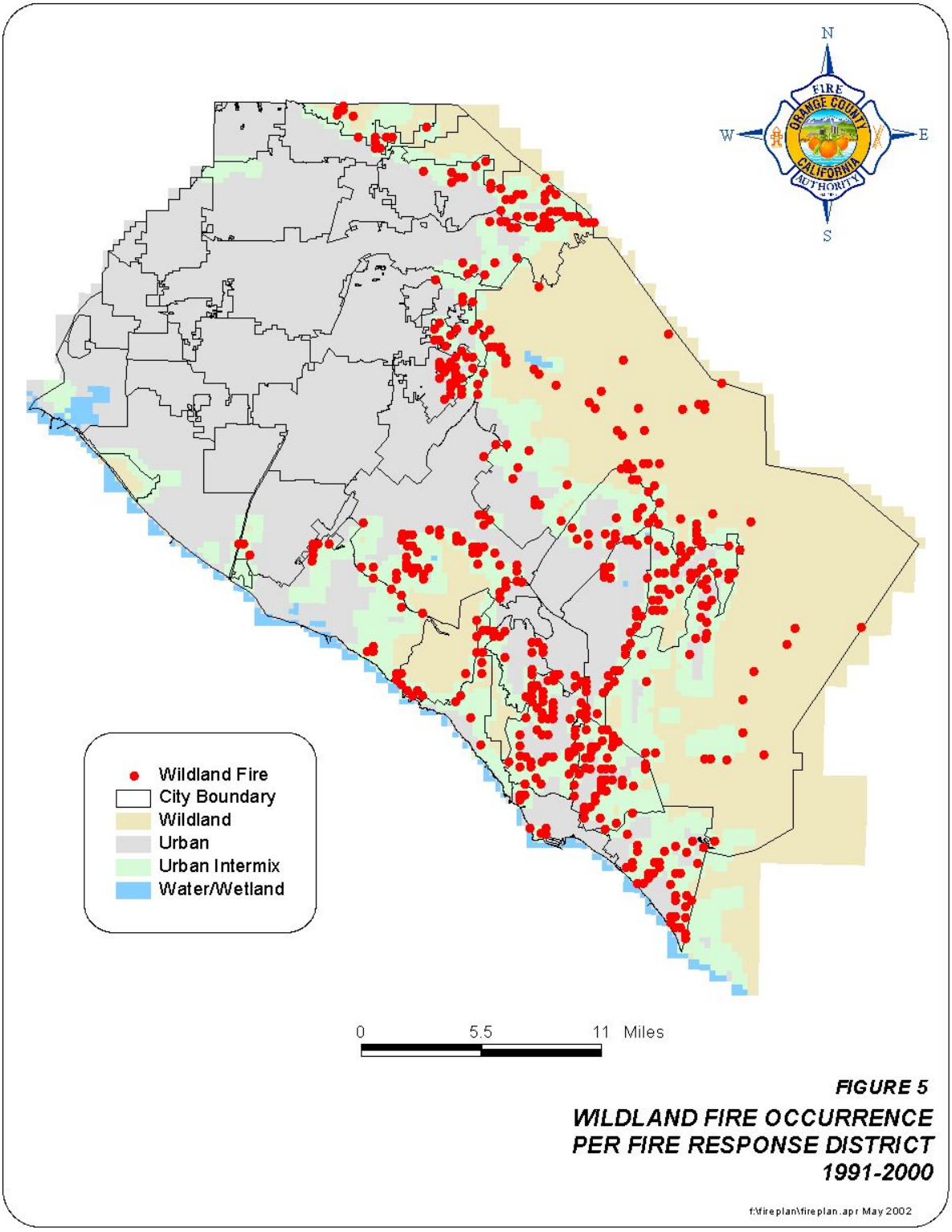

FIGURE 5

WILDLAND FIRE OCCURRENCE PER FIRE RESPONSE DISTRICT 1991-2000

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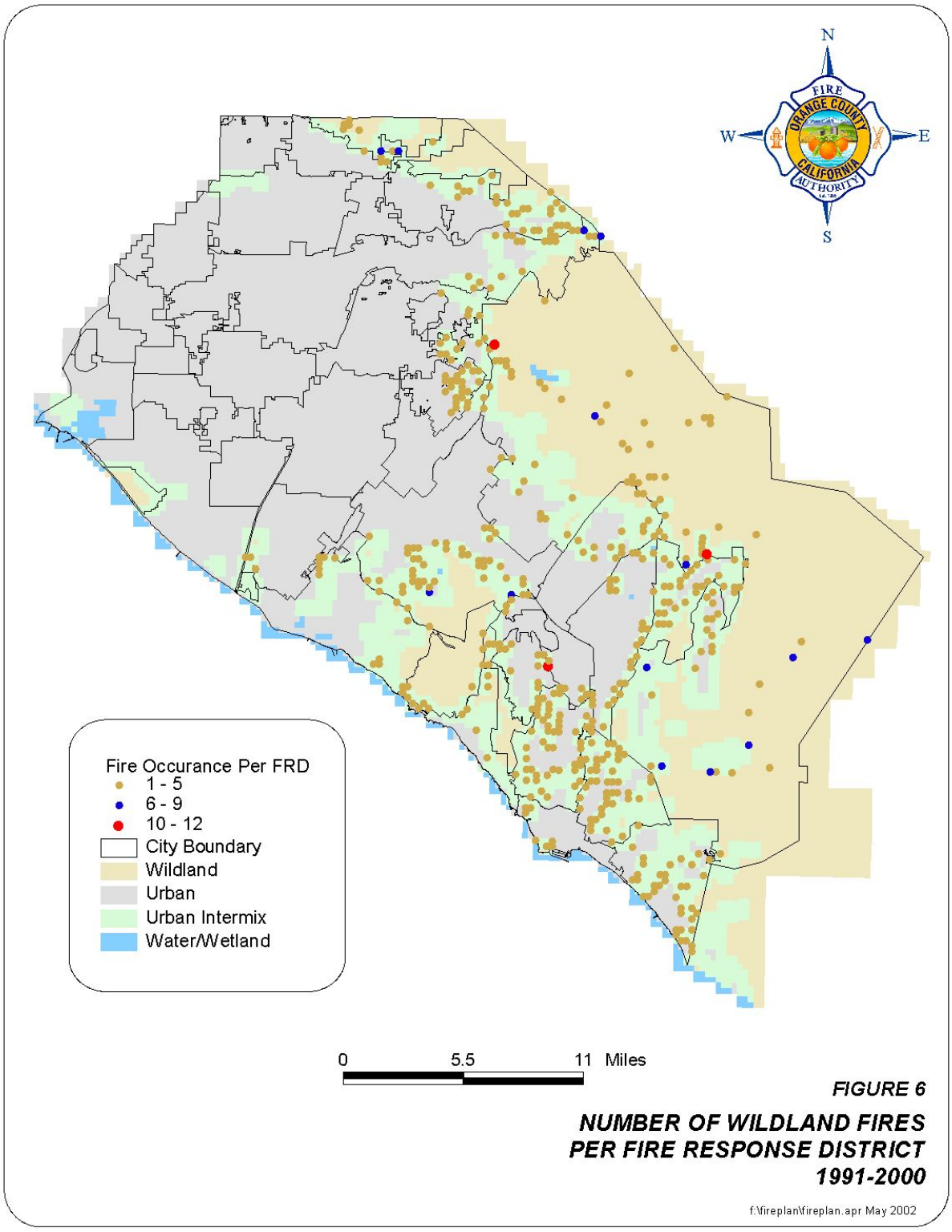

FIGURE 6

NUMBER OF WILDLAND FIRES PER FIRE RESPONSE DISTRICT 1991-2000

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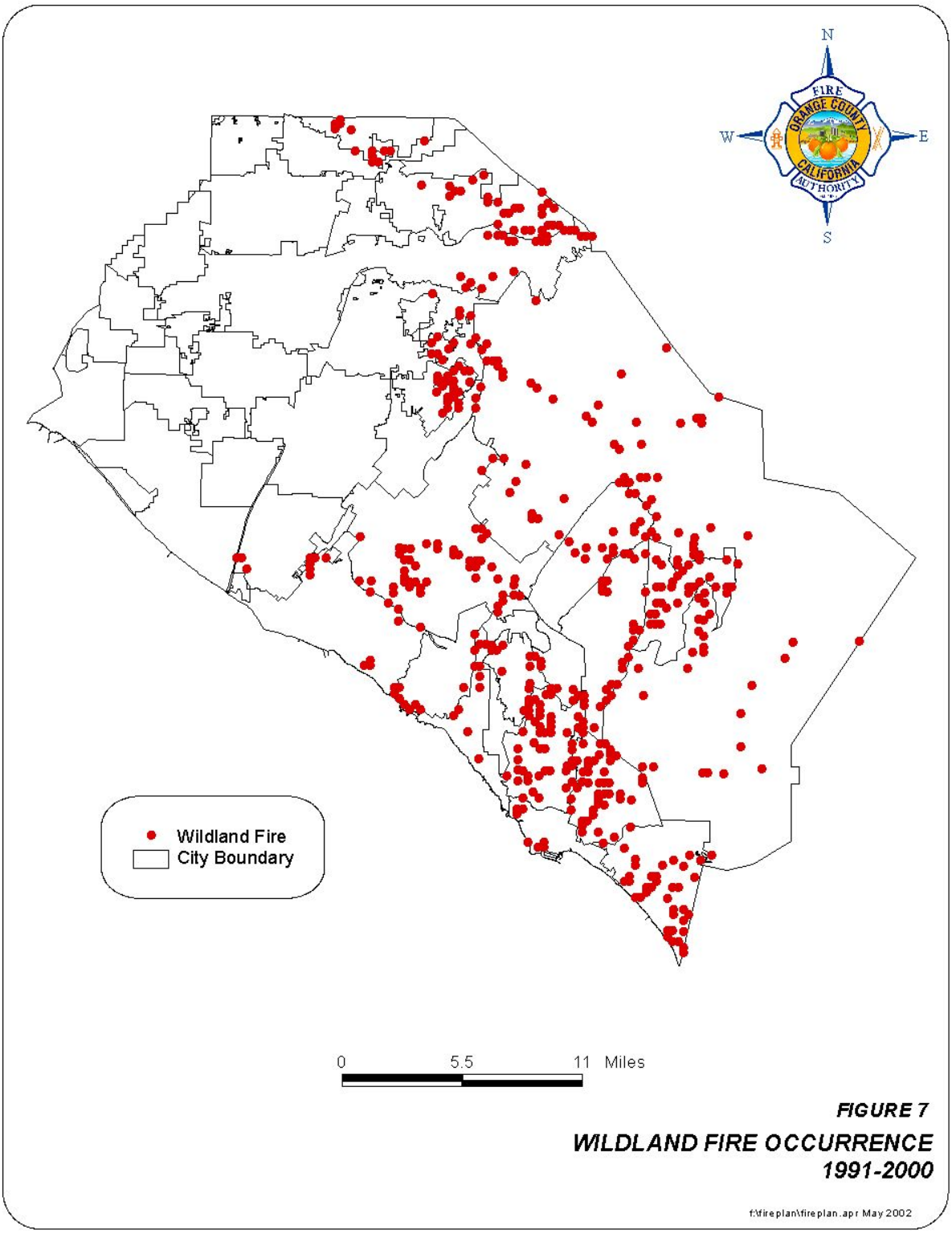

FIGURE 7

WILDLAND FIRE OCCURRENCE
1991-2000

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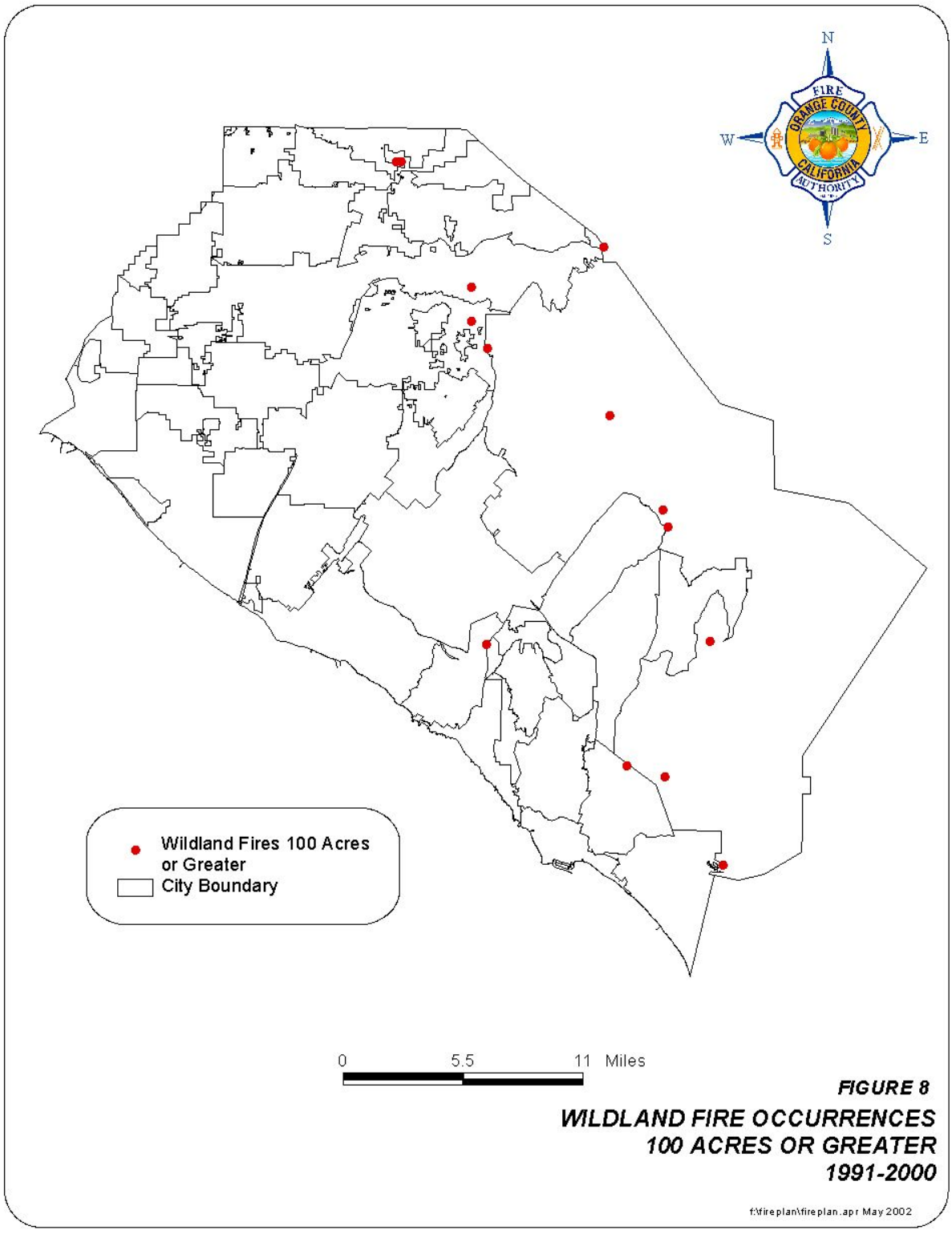

FIGURE 8

WILDLAND FIRE OCCURRENCES
100 ACRES OR GREATER
1991-2000

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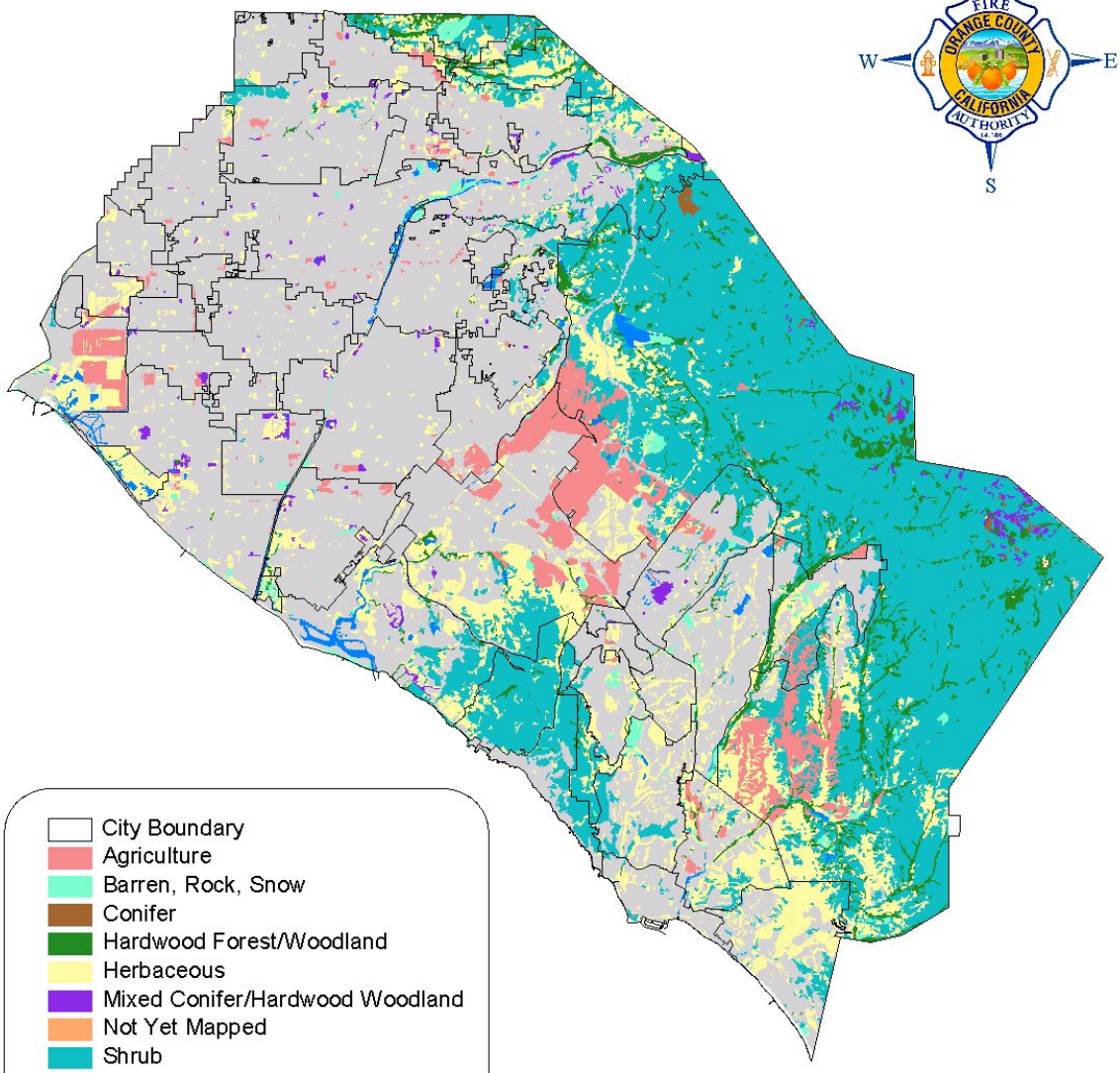

FIGURE 9

COMPOSITE VEGETATION 2000

Vegetation map as defined by current FRAP data (caveg2000)

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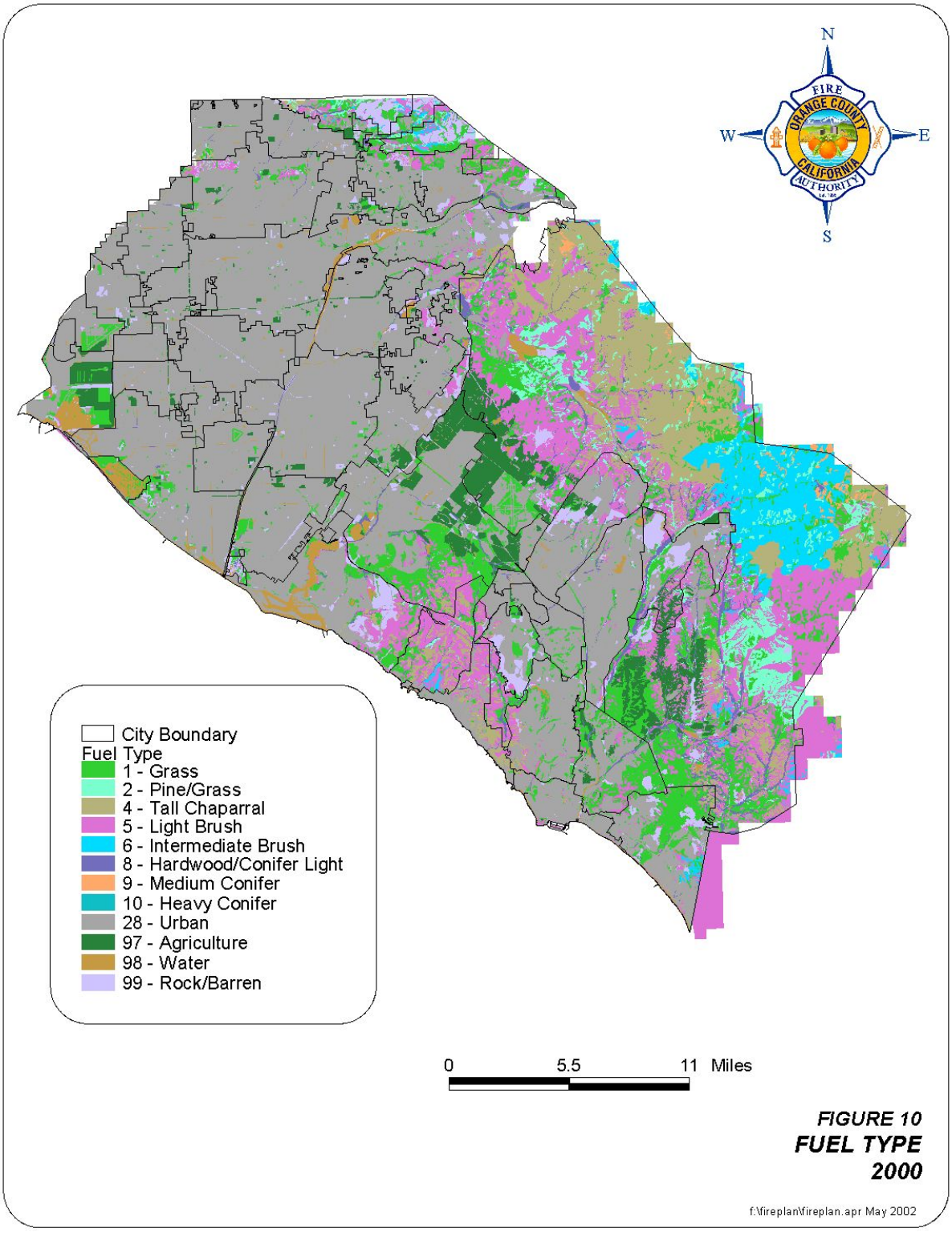

FIGURE 10
FUEL TYPE
2000

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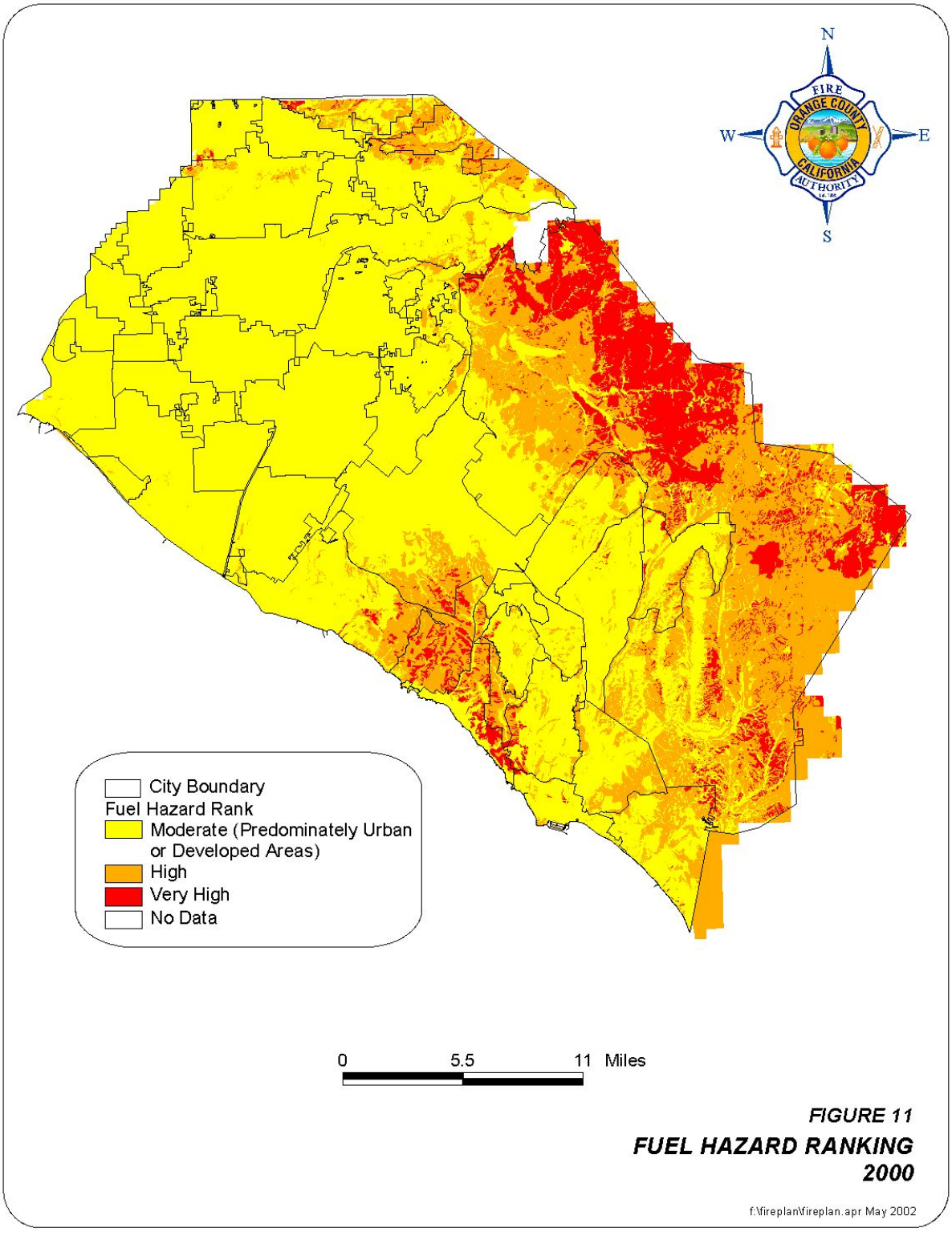

FIGURE 11

FUEL HAZARD RANKING 2000

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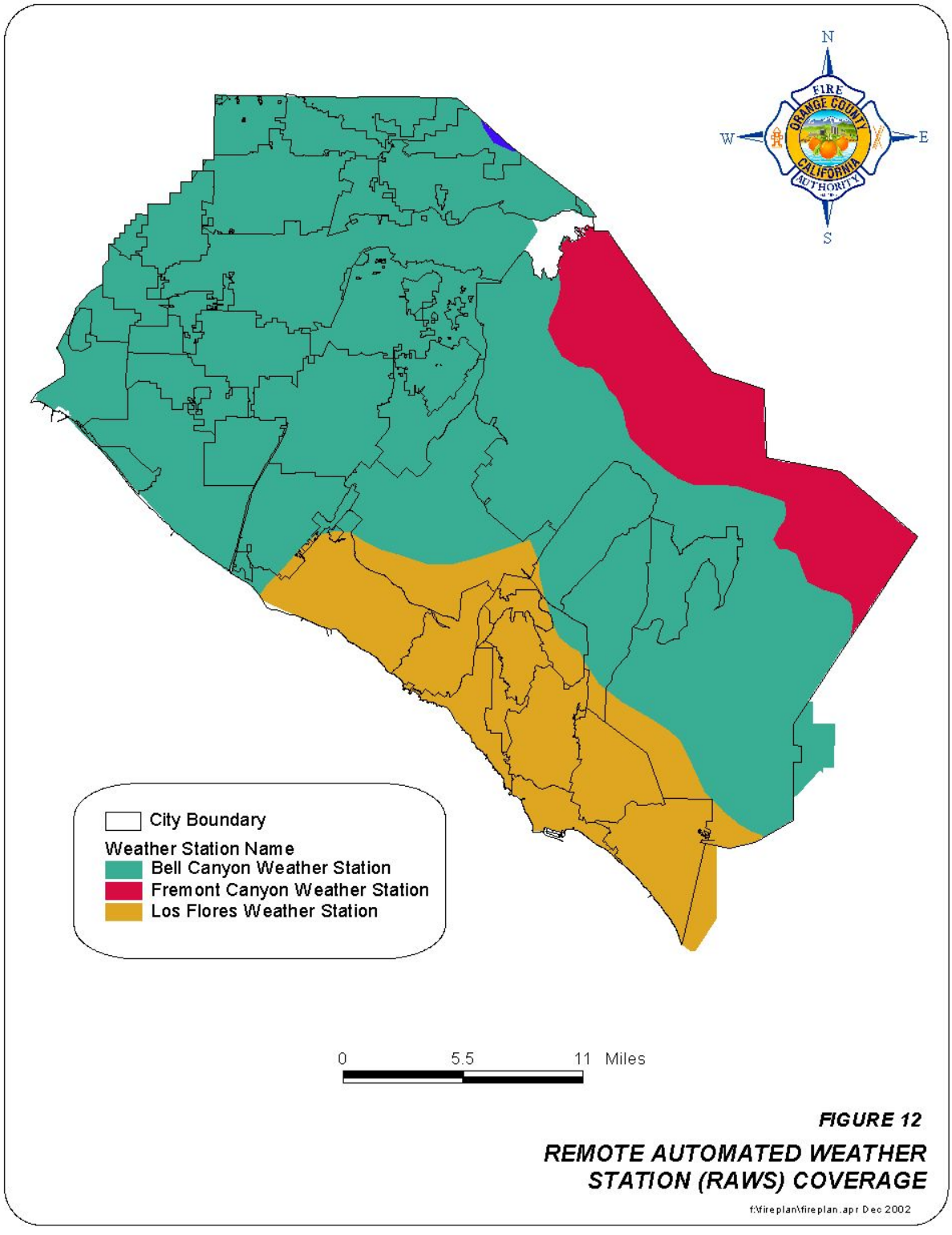

FIGURE 12

REMOTE AUTOMATED WEATHER STATION (RAWS) COVERAGE

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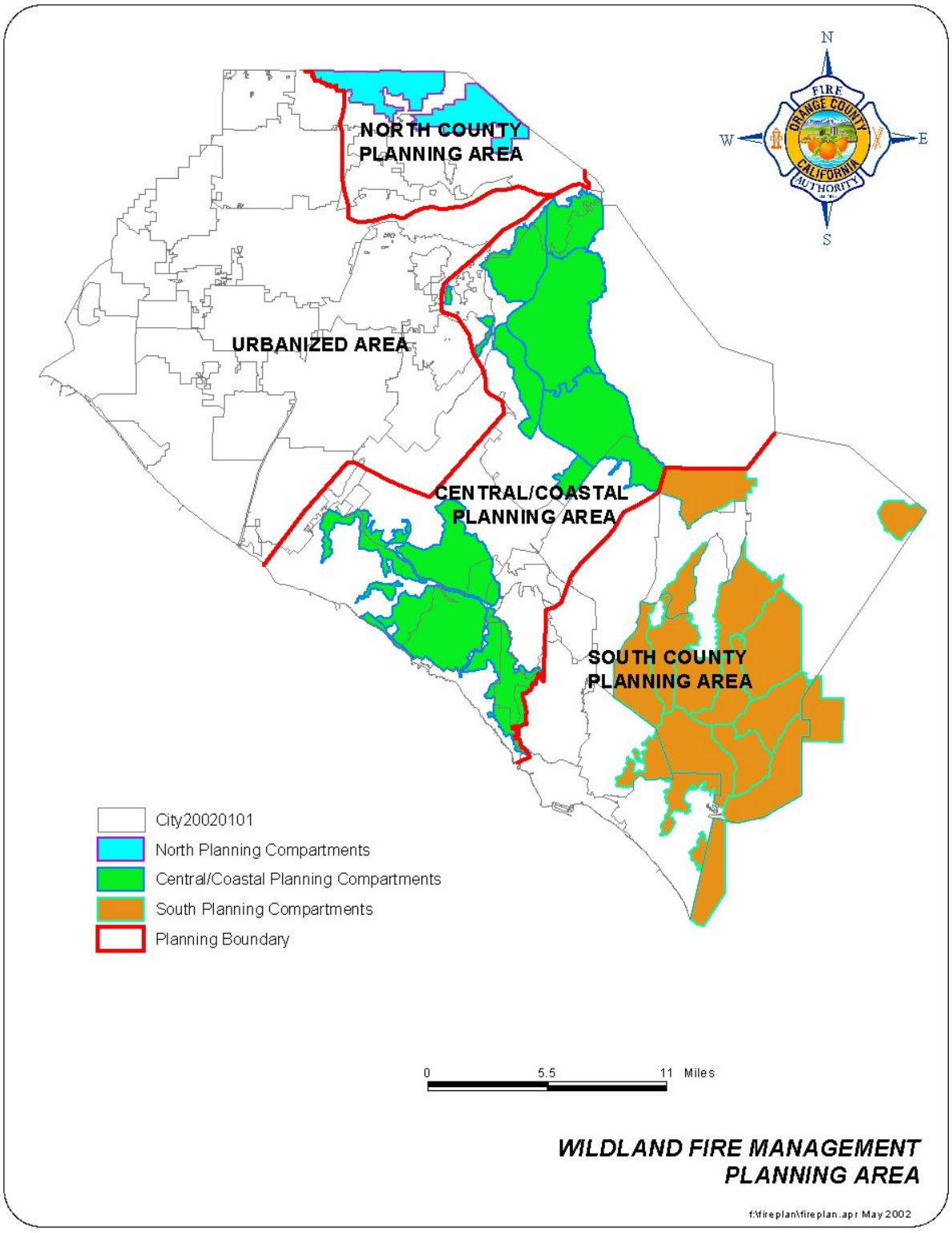
Appendix B. Countywide view of Wildland Fire Management Planning Areas.

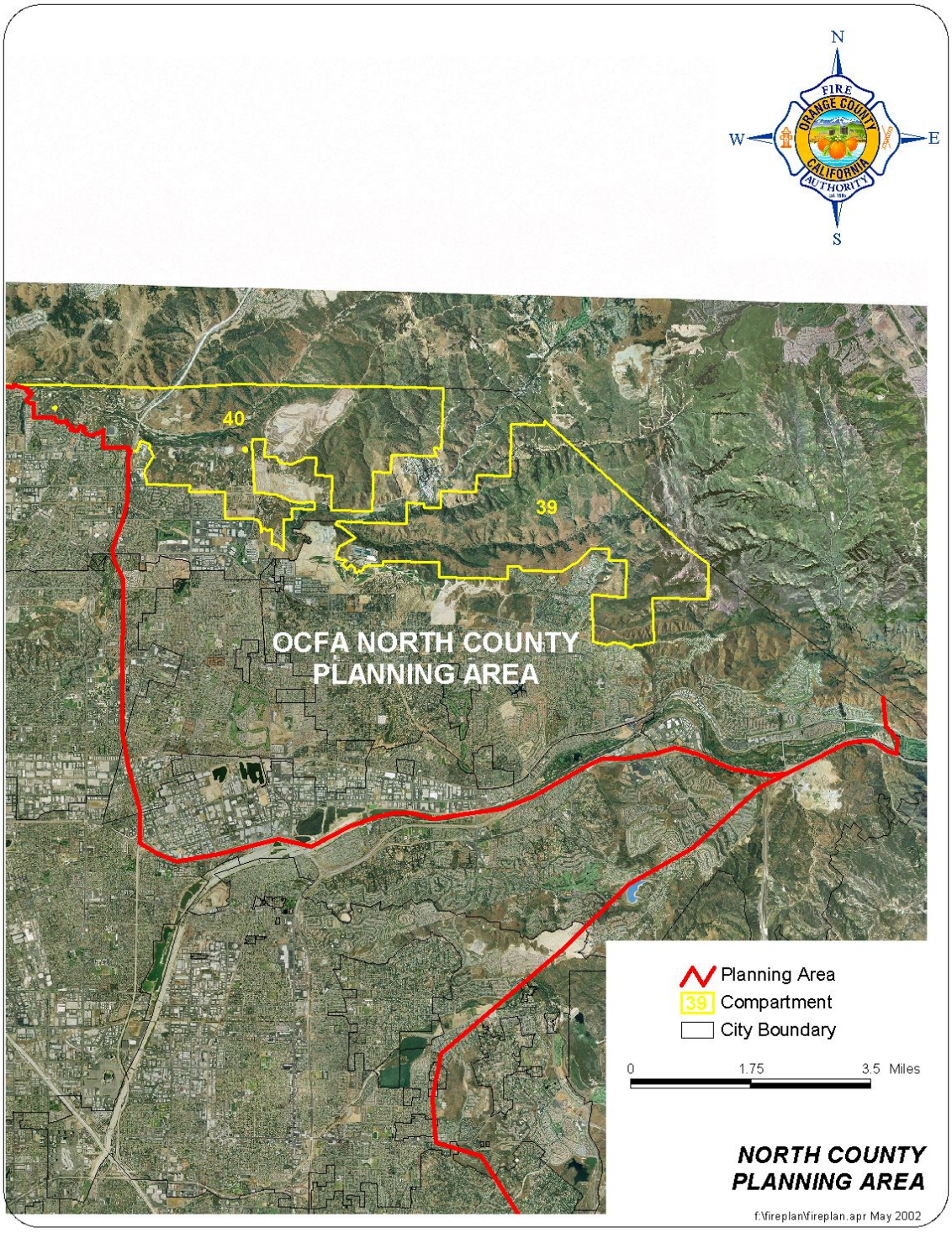


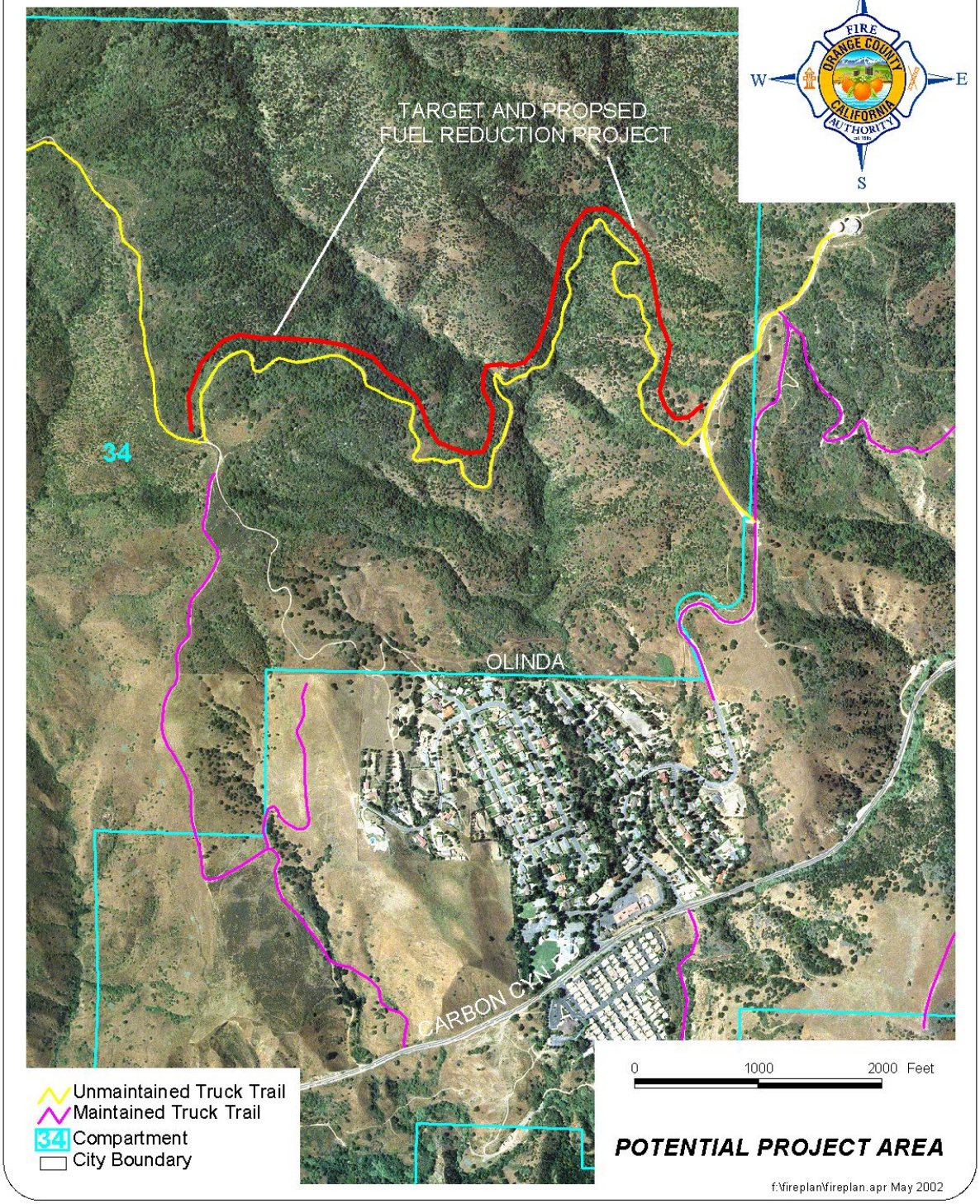
Appendix C. Target Areas and Proposed Projects, North County

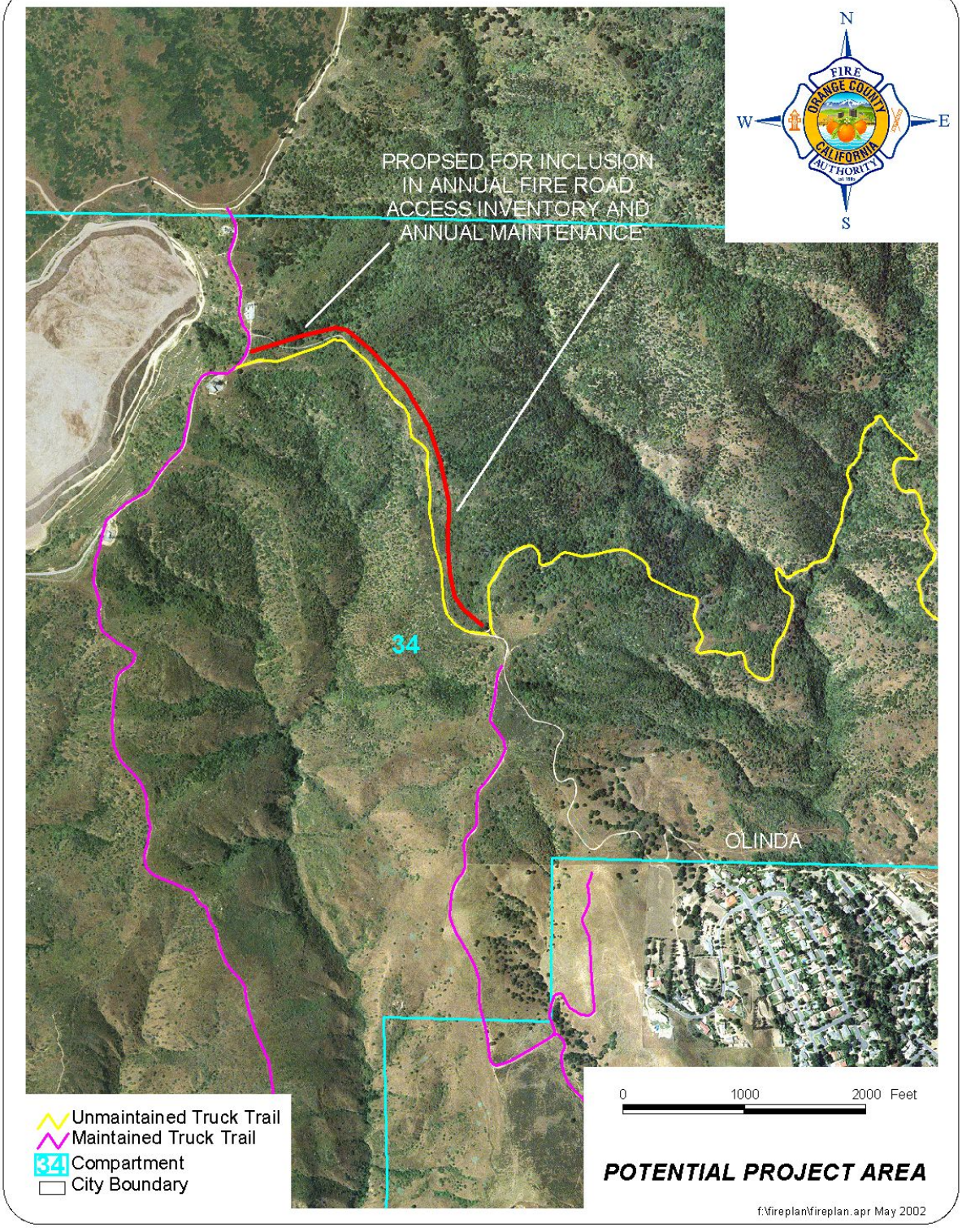
North County areas:

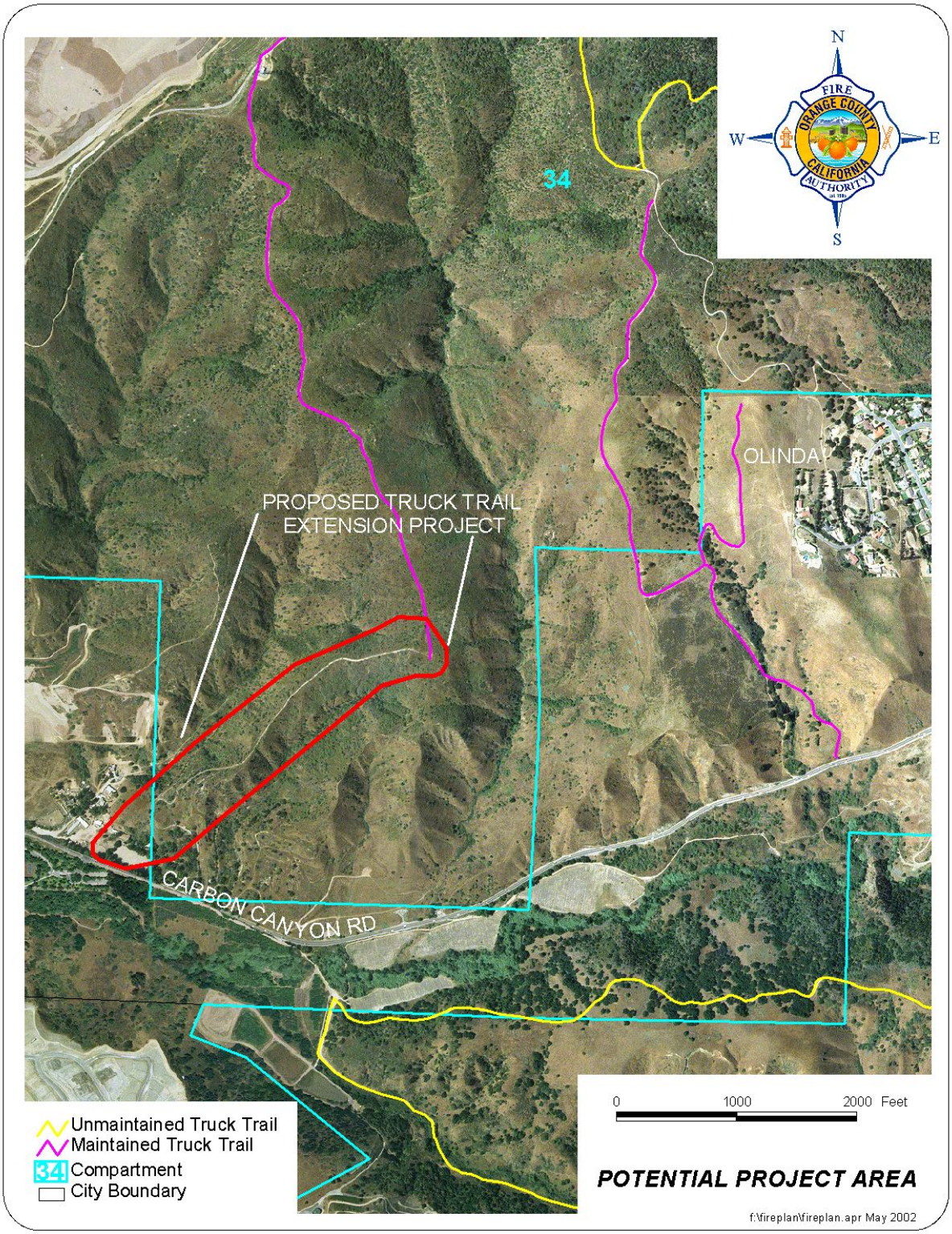
North county area projects need to be coordinated with surrounding jurisdictions to emphasize agreement of importance on any projects, provide a combined effort of project completion and will provide a mutual benefit for the protection of life and property and enhancement of ecological concerns.

- Conduct annual surveys of roads for emergency access.
- Provide for fire road access
- Work with the stakeholders to accomplish a fuels reduction program north of the community of Olinda.


N
W
E
S
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
40
39
OCFA NORTH COUNTY
PLANNING AREA
Planning Area
39 Compartment
City Boundary
0
1.75
3.5 Miles
NORTH COUNTY
PLANNING AREA
f:\fireplan\fireplan.apr May 2002


N
W
E
S
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
TARGET AND PROPSED
FUEL REDUCTION PROJECT
34
OLINDA
CARBON CYN
Unmaintained Truck Trail
Maintained Truck Trail
34 Compartment
City Boundary
0
1000
2000 Feet
POTENTIAL PROJECT AREA
f:\fireplan\fireplan.apr May 2002


N
W
E
S
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
PROPSED FOR INCLUSION
IN ANNUAL FIRE ROAD
ACCESS INVENTORY AND
ANNUAL MAINTENANCE
34
OLINDA
Unmaintained Truck Trail
Maintained Truck Trail
34 Compartment
City Boundary
0
1000
2000 Feet
POTENTIAL PROJECT AREA
f:\fireplan\fireplan.apr May 2002


N
W
E
S
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
34
OLINDA
PROPOSED TRUCK TRAIL
EXTENSION PROJECT
CARBON CANYON RD
0
1000
2000 Feet
Unmaintained Truck Trail
Maintained Truck Trail
34 Compartment
City Boundary
POTENTIAL PROJECT AREA
f:\fireplan\fireplan.apr May 2002

Appendix D. Target Areas and Proposed Projects, Central County and Coastal Areas

Central county and coastal areas:

Central county and coastal areas that are defined within the Nature Reserve of Orange County (NROC) areas:

The "NCCP/HCP WILDLAND FIRE MANAGEMENT PLAN" has identified fire protection treatments (fuel treatments by mechanical or hand-labor means, prescribed fire or a combination of all three) for a variety of Fire Management Units (FMU).

Protection of Life and Property:

FMU 1.02: Fuel treatment by thinning and pruning by hand cutting and chipping biomass. It appears that there is not enough distance between private property and NROC lands to meet the minimum 170-ft. of clearance.

FMU 1.03: Considered as the most serious for potential loss of life and property. Heavy fuel loading and extremely steep terrain is down-slope from homes (Top of the World) along the ridge top, and the up-slope topography aligns with an east to northeast (Santa Ana) wind pattern.

Fuel treatment with a combination of hand-cutting, mechanical crushing and strip burning of the crushed vegetation on NROC lands will assist in achieving a 170-foot clearance zone. Any fuel treatment for defensible space immediately adjacent to all structures will be the responsibility of each homeowner.

FMU 3.05: This area is completely surrounded by residential structures and tracts. Fuel treatments to include hand cutting of vegetation to complete required clearances on NROC lands. Any fuel treatment for defensible space immediately adjacent to all structures or on private lands will be the responsibility of each homeowner.

FMU 4.07: Fuel treatment on the eastern boundary of NROC lands to meet 170-foot clearance requirements between private property.

FMU 6.07: Fuel treatment on NROC lands and adjacent to Lake Forest residential areas to complete 170-foot clearance.

FMU 8.02: Continuation of the OCFA/Peters Canyon Park eucalyptus thinning and maintenance program.

FMU 9.01: Fuel treatment on NROC lands between private structures and Shirley Grindle Park. The entire FMU is surrounded by structures.

Protection of Biological Values:

Fuel treatments to protect high biological values are either by strategically placed fuelbreaks and/or prescribed fire units to breakup highly flammable vegetation fuels. Fuelbreaks will usually consist of minimal ground disturbance by either hand labor or mechanical treatments (e.g. dozer crushing) followed by prescribed fire (strip burning) to widen and enhance the fuelbreak.

Prescribed fire will be the principle method of restoring fire back into the ecosystem, such as CSS restoration, Native grassland management, chaparral/shrub sites and the long-term management goals of the NROC.

FMU 1.03: Aliso/Wood Canyon. Prescribe burn approximately 100 acres in flat bottomlands to support native grass.

FMU 2.03: Crystal Cove State Park. Prescribed burn 2 units of approximately 50+ acres for each in the Meadow and Bowl Areas to restore native grasslands.

FMU 6.07: Whiting Ranch. Prescribed burn 2 units of approximately 100+ acres in degraded grassland areas. Prescribed fire will be a pre-treatment for future restoration.

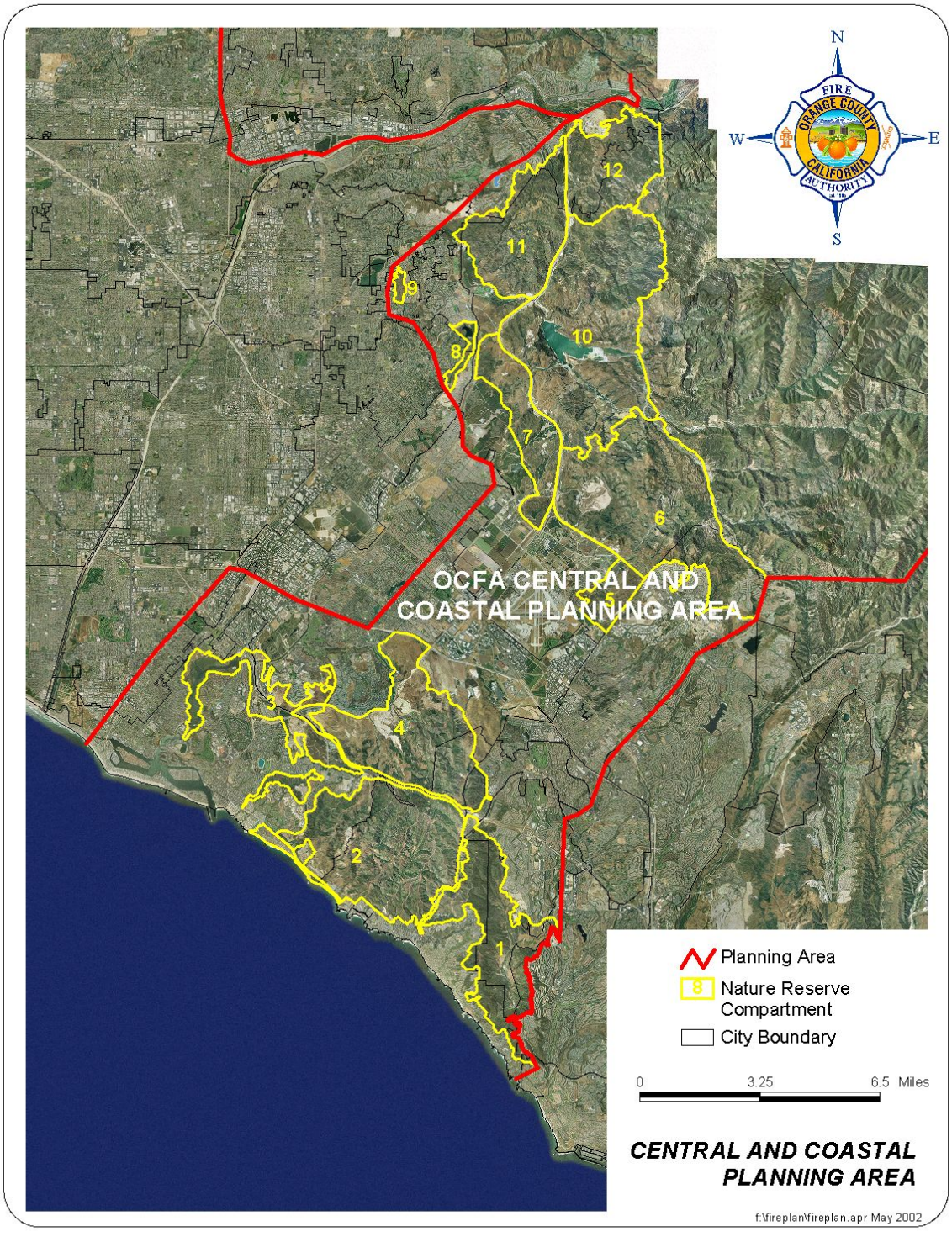
FMU 4.01: Bommer/Bonita Canyon. Prescribed burns to remove biomass after artichoke thistle control and promote native grasslands.

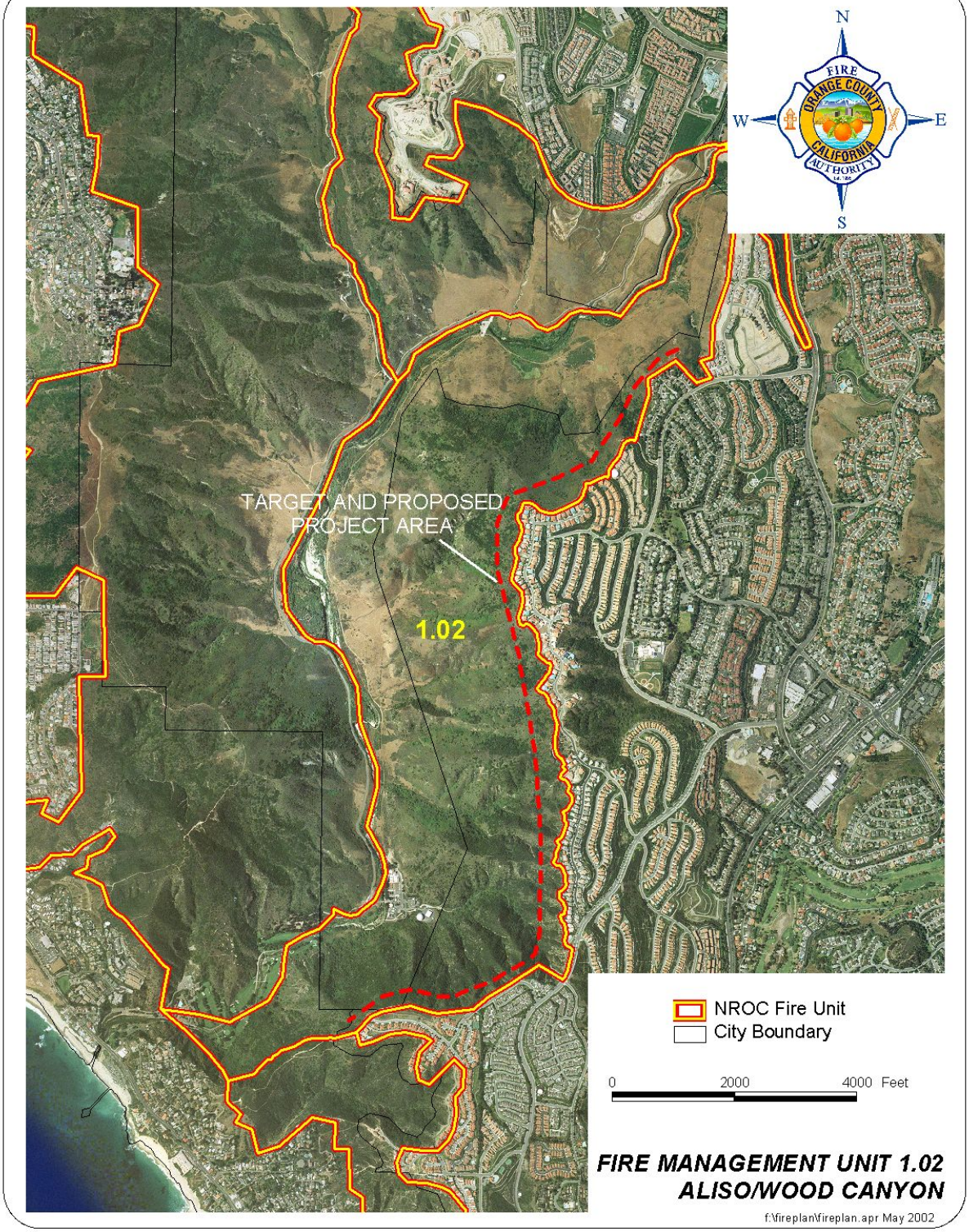
FMU 7.01: North side of Loma Ridge. Prescribed burns to reintroduce fire into the ecosystem and benefit numerous rare plant species.

FMU 8.01: Peters Canyon Park. Possible 30 acre prescribed burn to support native grasslands.

FMU 11.06: Weir Canyon. 5-10 acre prescribed burns of low to moderate intensity to reduce fuels by 50% - 70%. Avoid oak woodlands and riparian habitats.

FMU 12.02: Gypsum Canyon. 5-10 acre prescribed burns of low to moderate intensity to reduce fuels by 50% - 70%. Avoid oak woodlands and riparian habitats.


N
W
E
S
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
12
11
9
10
8
7
6
OCFA CENTRAL AND
COASTAL PLANNING AREA
3
4
2
1
Planning Area
8 Nature Reserve Compartment
City Boundary
0
3.25
6.5 Miles
CENTRAL AND COASTAL
PLANNING AREA
f:\fireplan\fireplan.apr May 2002


N
W
E
S
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
TARGET AND PROPOSED
PROJECT AREA
1.02
NROC Fire Unit
City Boundary
0
2000
4000 Feet
FIRE MANAGEMENT UNIT 1.02
ALISO/WOOD CANYON
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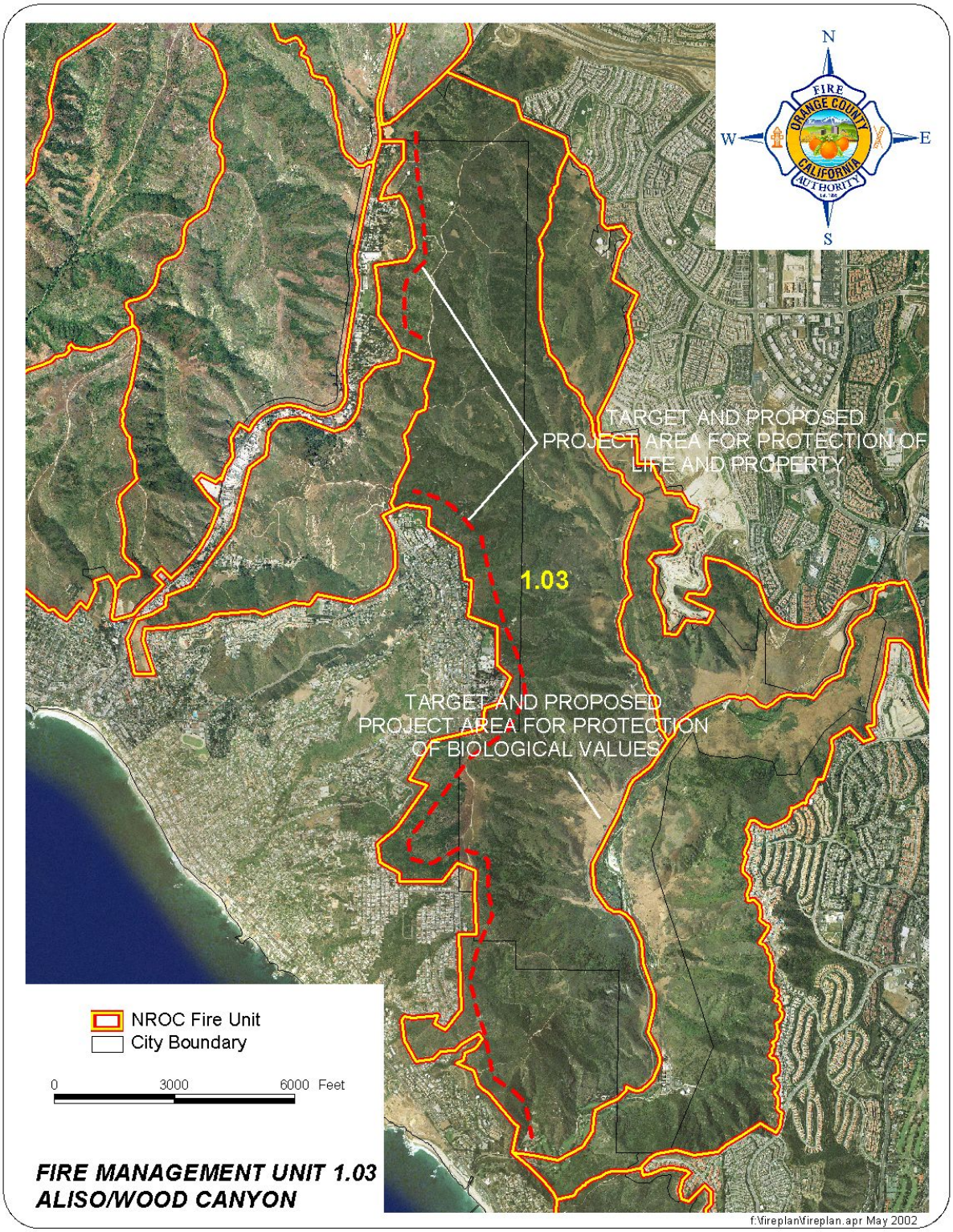
N
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FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
TARGET AND PROPOSED
PROJECT AREA FOR PROTECTION OF
LIFE AND PROPERTY
1.03
TARGET AND PROPOSED
PROJECT AREA FOR PROTECTION
OF BIOLOGICAL VALUES
NROC Fire Unit
City Boundary
0
3000
6000 Feet
FIRE MANAGEMENT UNIT 1.03
ALISO/WOOD CANYON
f:\fireplan\fireplan.apr May 2002


N
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FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
2.03
NROC Fire Unit
City Boundary
0
2000
4000 Feet
FIRE MANAGEMENT UNIT 2.03
CRYSTAL COVE STATE PARK
f:\fireplan\fireplan.apr May 2002

FIRE MANAGEMENT UNIT 3.05
NEWPORT COAST

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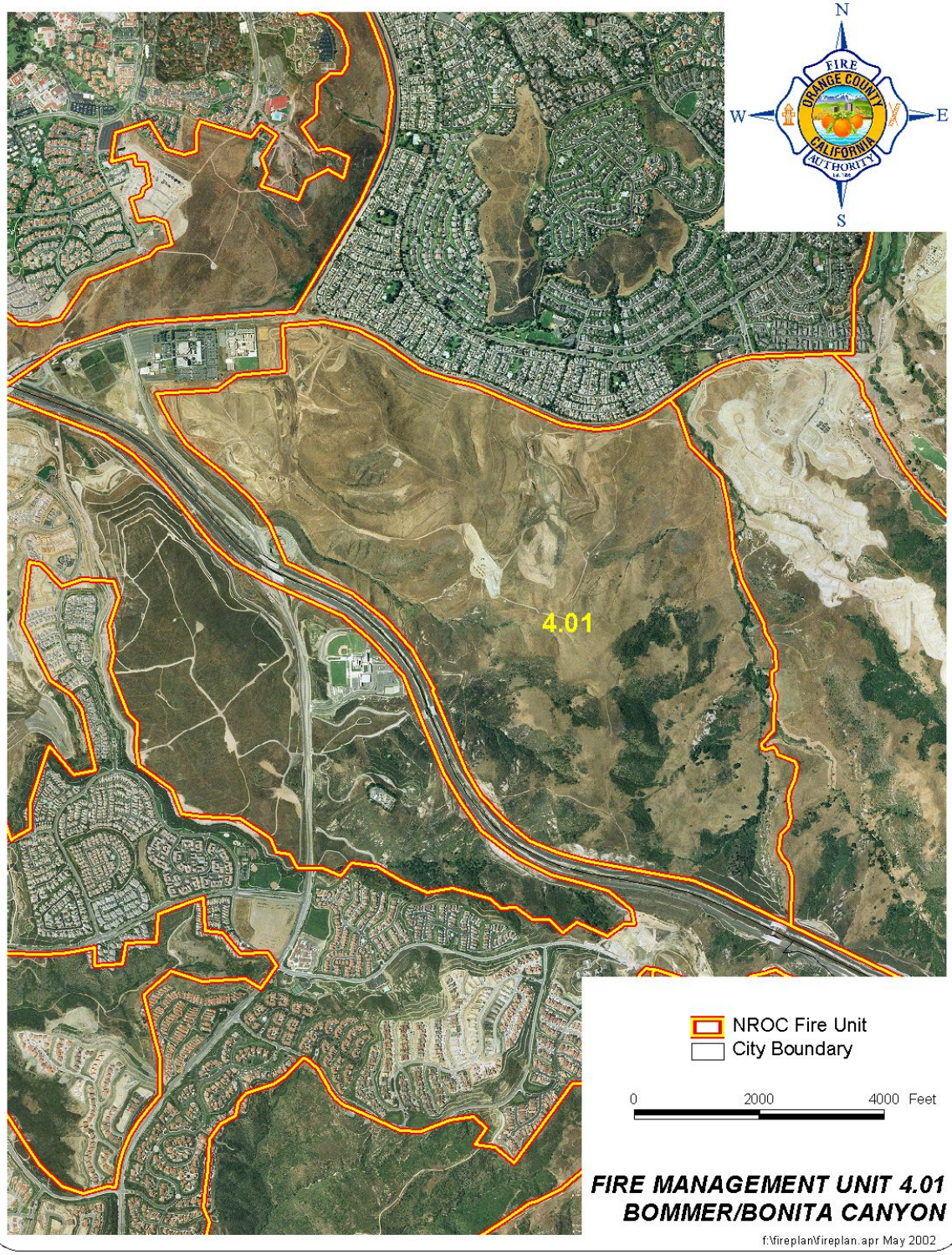

FIRE MANAGEMENT UNIT 4.01
BOMMER/BONITA CANYON

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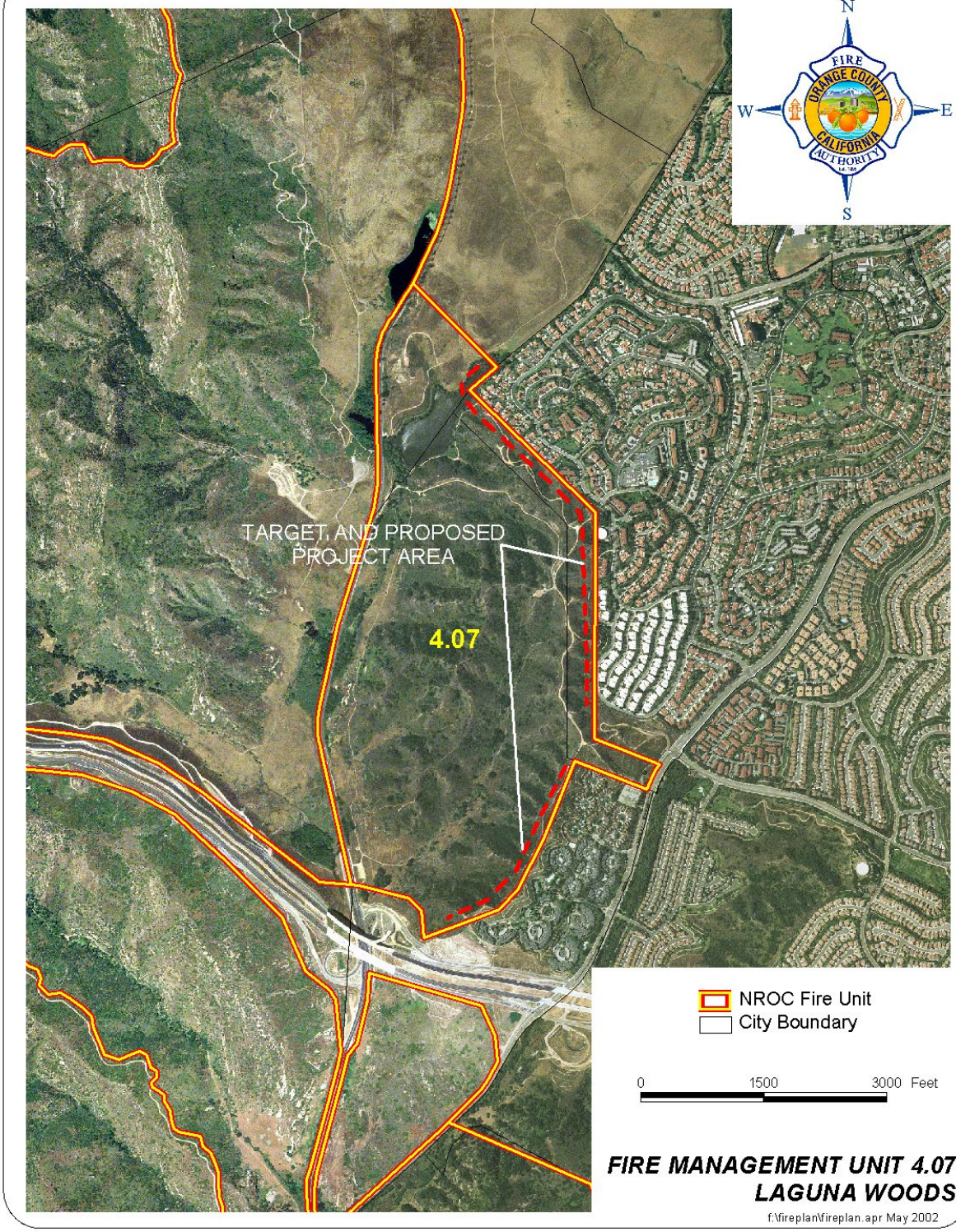
N
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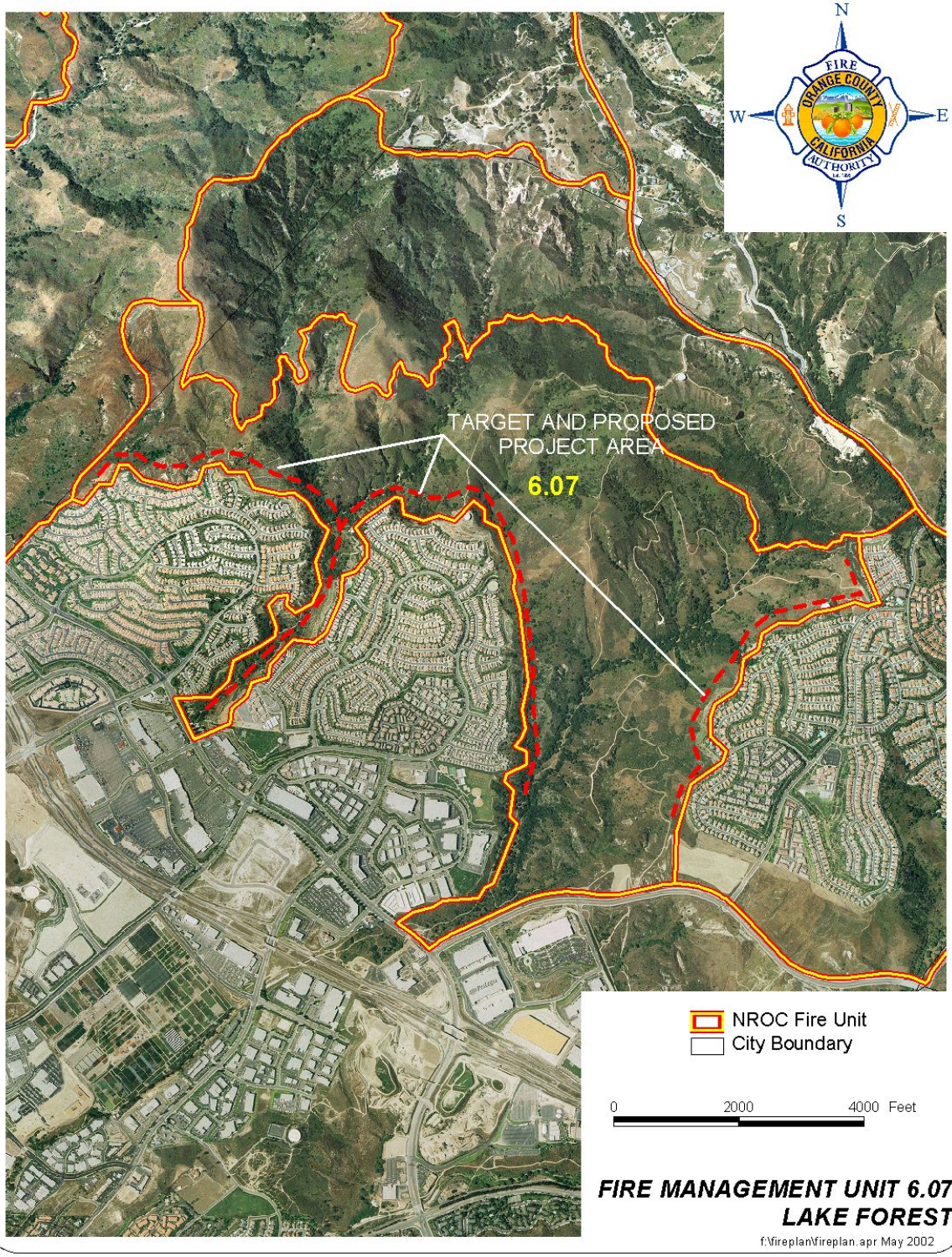
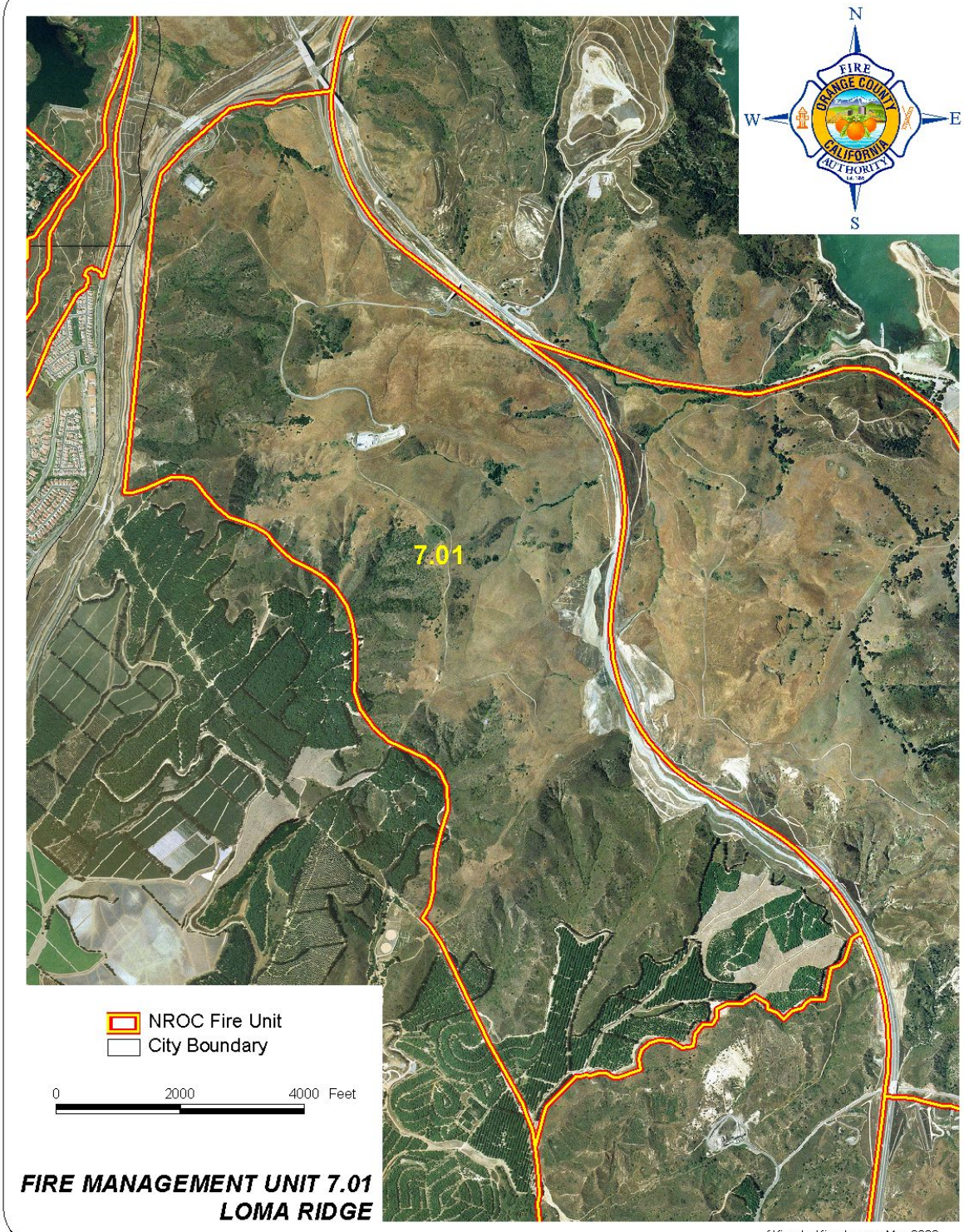
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
TARGET AND PROPOSED
PROJECT AREA
4.07
NROC Fire Unit
City Boundary
0
1500
3000 Feet
FIRE MANAGEMENT UNIT 4.07
LAGUNA WOODS
f:\fireplan\fireplan.apr May 2002



FIRE MANAGEMENT UNIT 6.07
LAKE FOREST

f:\fireplan\fireplan.apr May 2002



FIRE MANAGEMENT UNIT 7.01
LOMA RIDGE

f:\fireplan\fireplan.apr May 2002

FIRE MANAGEMENT UNIT 8.01
PETERS CANYON PARK

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FIRE MANAGEMENT UNIT 8.02
PETERS CANYON PARK

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FIRE MANAGEMENT UNIT 9.01
SHIRLEY GRINDLE PARK

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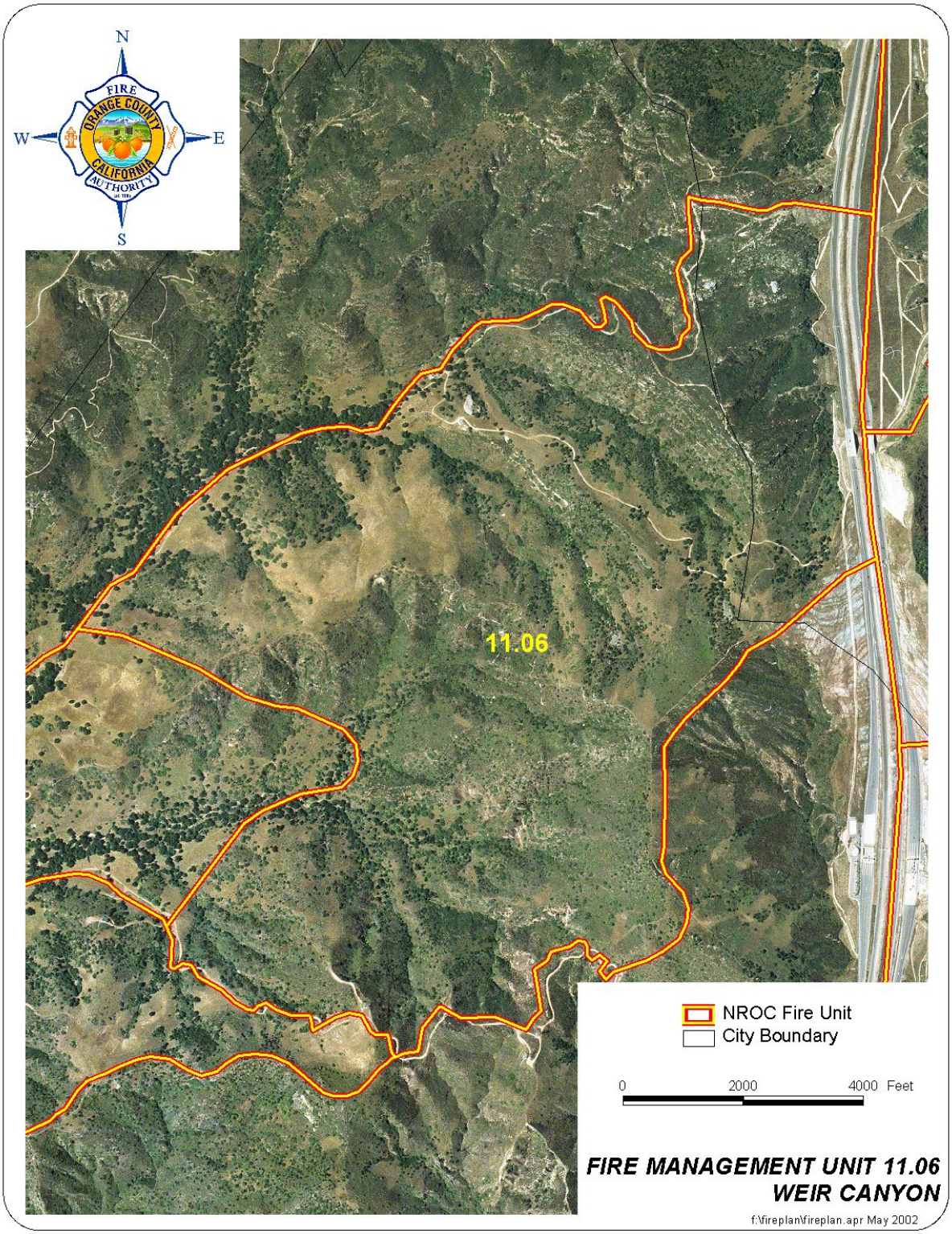
N
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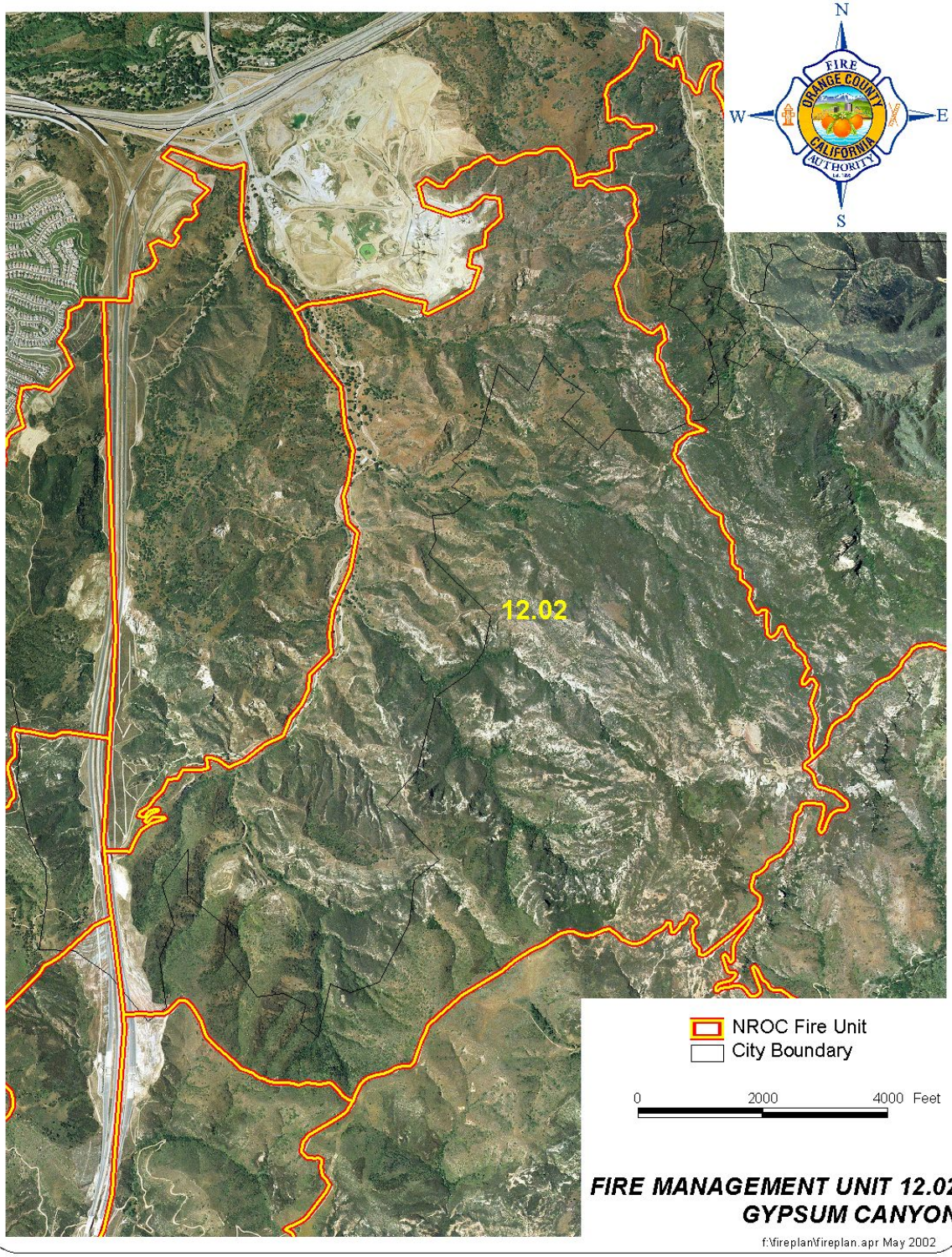
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
11.06
NROC Fire Unit
City Boundary
0
2000
4000 Feet
FIRE MANAGEMENT UNIT 11.06
WEIR CANYON
f:\fireplan\fireplan.apr May 2002



FIRE MANAGEMENT UNIT 12.02
GYPSUM CANYON

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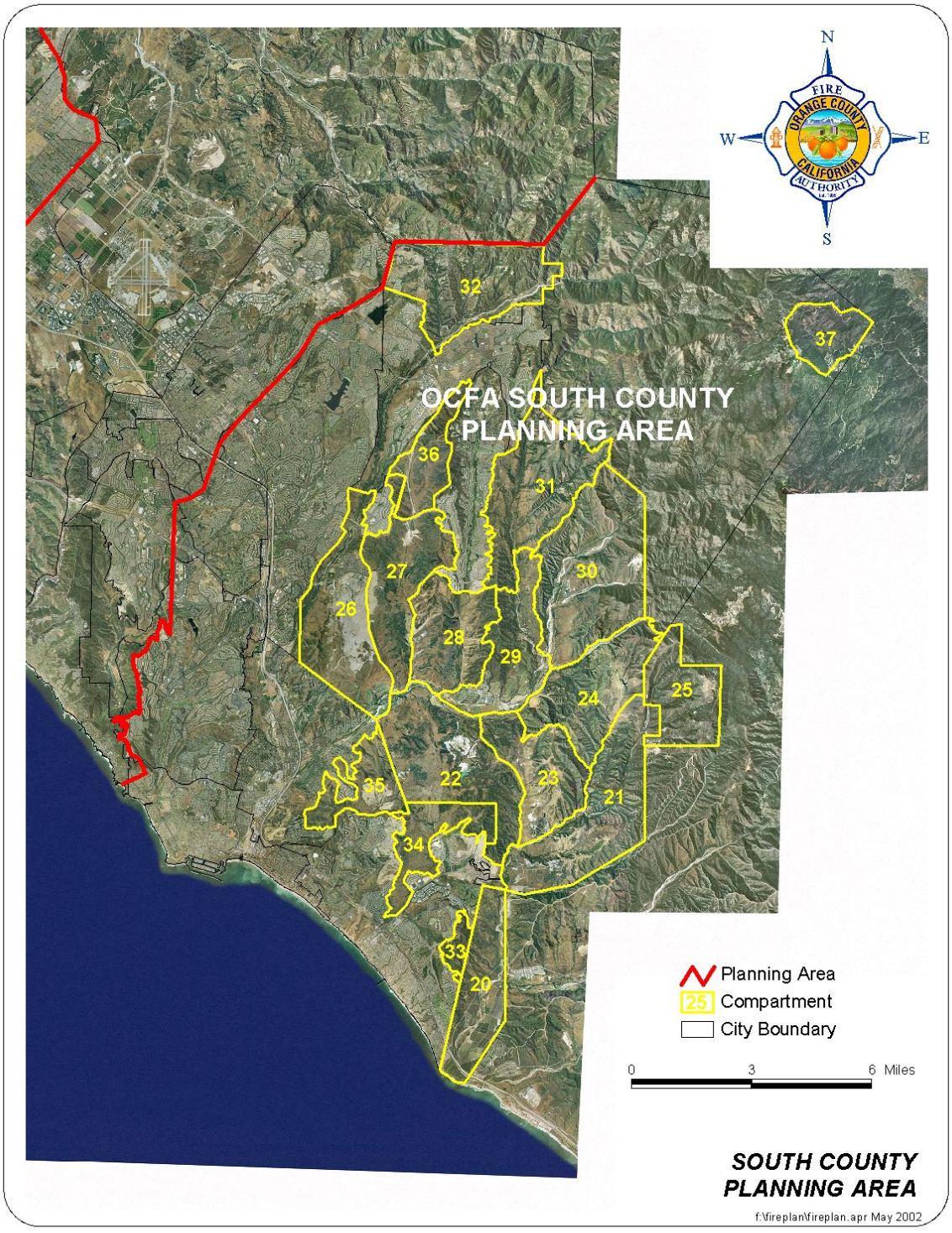
Appendix E. Target Areas and Proposed Projects, South County

South County areas:

South county area projects need to be coordinated with surrounding jurisdictions to emphasize agreement of importance on any projects, provide a combined effort of project completion and will provide a mutual benefit for the protection of life and property and enhancement of ecological concerns.

- Conduct annual surveys of roads for emergency access.
- Provide for fire road access
- Work with the stakeholders to accomplish a fuels reduction program in the areas adjacent to the City of San Clemente.


N
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FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
OCFA SOUTH COUNTY
PLANNING AREA
32
37
36
31
27
30
26
28
29
24
25
35
22
23
21
34
33
20
Planning Area
25 Compartment
City Boundary
0
3
6 Miles
SOUTH COUNTY
PLANNING AREA
f:\fireplan\fireplan.apr May 2002


N
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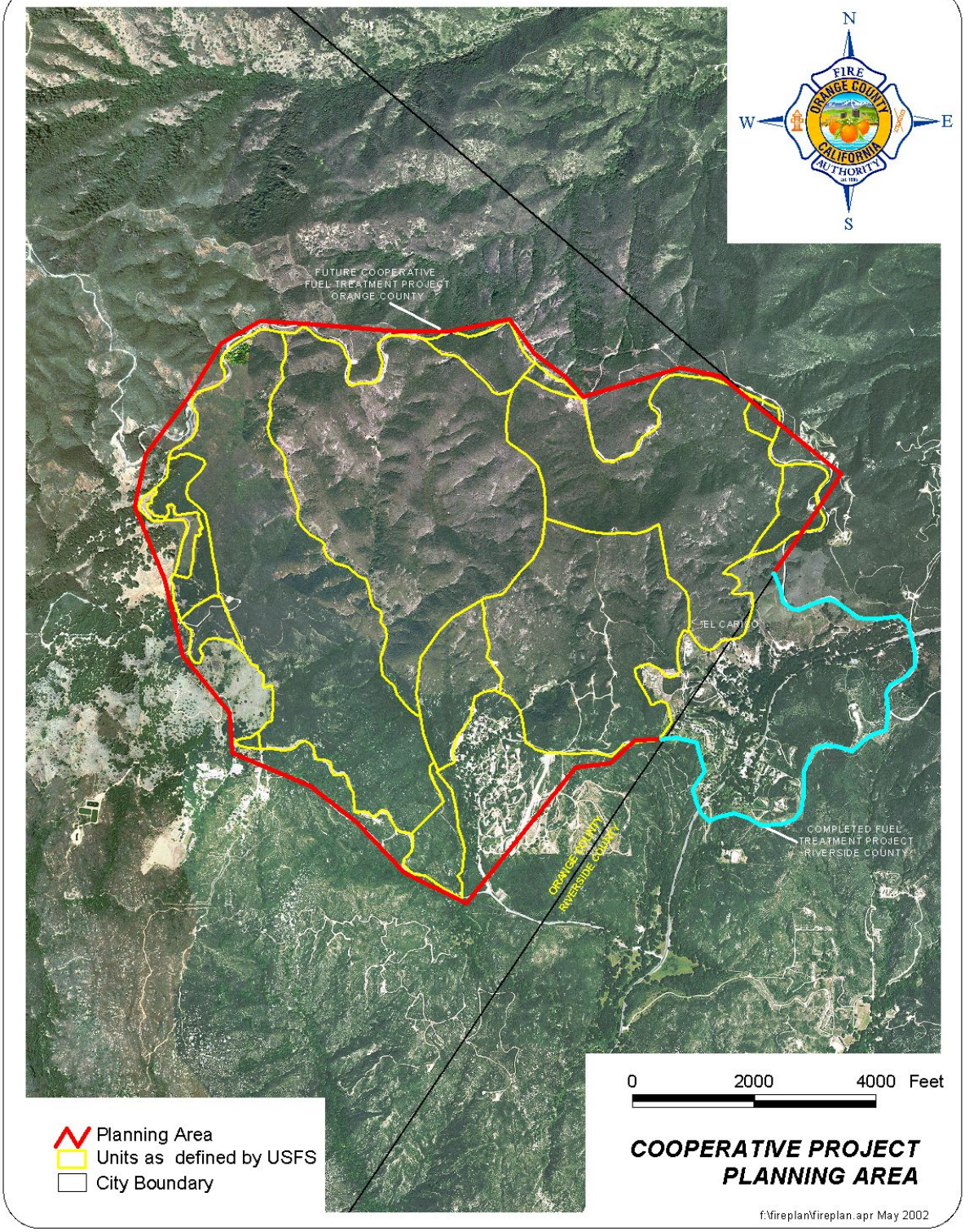
S
FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
SAN CLEMENTE
TARGETED AREA
FOR FUEL TREATMENT
20
20 Compartment
County Boundary
0
4500
9000 Feet
POTENTIAL PROJECT AREA
f:\fireplan\fireplan.apr May 2002


N
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FIRE
ORANGE COUNTY
CALIFORNIA
AUTHORITY
FUTURE COOPERATIVE
FUEL TREATMENT PROJECT
ORANGE COUNTY
COMPLETED FUEL
TREATMENT PROJECT
RIVERSIDE COUNTY
ORANGE COUNTY
RIVERSIDE COUNTY
0
2000
4000 Feet
Planning Area
Units as defined by USFS
City Boundary
COOPERATIVE PROJECT
PLANNING AREA
f:\fireplan\fireplan.apr May 2002

GLOSSARY

Assets - A generic term referring to all facets that can effected by an impinging fire. Effects can be either positive or negative in terms of amount of disturbance.

Assets at Risk - Assets identified as being at risk from wildland fire. Assets include, but are not limited to, citizen and firefighter safety, watershed and water, timber, wildlife and habitat (including rare and endangered species), unique areas (scenic, cultural and historic), recreation, range, structures and air quality.

Hazardous Fuels - Combustible materials, usually in the form of loose surface litter on the soil surface consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.

Initial Attack Success - A term given to the process for measuring the protection system for wildland fire and the ability to provide an equal level of protection to lands of similar type. The measured outcome is referred to as "Success Ratio" (see below).

Pre-Fire Management - A defined and assessed list of alternatives to protect assets from unacceptable risk of wildland fire damage, the alternatives can become a program of work to provide protection to Assets at Risk.

Prescribed Fire - Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist prior to ignition.

Stakeholders - Any person, agency or organization with a particular interest, in fire safety and protection of assets from wildland fire.

Success Ratio - A rating, expressed as a percentage, representing the number of incidents where initial attack was successful. The success is that effort which contains the wildland fire to 100 acres or less, the level of resource commitment, acceptable suppression costs and minimal damage to the Assets at Risk.

Wildland Fire - Any nonstructural fire, other than prescribed fire, that occurs in the Wildlands.

Wildland Fire Management Compartments - Areas defined from established fire history, topography, landmarks, roads and any other distinguishing features. The compartments will be used primarily for long-range planning that will reduce citizen and firefighter risks from costly and damaging fire.

Wildland Urban Interface - The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.